

**CALIFORNIA CODE OF REGULATIONS, TITLE 19,  
DIVISION 1, CHAPTER 14  
INITIAL STATEMENT OF REASONS**

**EXISTING LAW**

The California Department of Forestry and Fire Protection's – Office of the State Fire Marshal, Pipeline Safety Division (OSFM) exercises exclusive safety, regulatory, and enforcement authority over approximately 6,500 miles of intrastate hazardous liquid pipelines. The OSFM consists of engineers, analytical staff, and clerical support located in Northern, Central, and Southern California that inspect pipeline operators to ensure compliance with federal and State pipeline safety laws and regulations. The OSFM is also responsible for the investigation of pipeline ruptures, fires, and accidents for cause and determination of probable violations of pipeline safety laws and regulations.

The OSFM regulates the safety of intrastate hazardous liquid pipelines through certification from the United States Department of Transportation - Pipeline and Hazardous Materials Safety Administration (PHMSA). The current PHMSA certification requires the OSFM to conduct six different types of inspections on each intrastate hazardous liquid pipeline operator, and two different types of inspections on each intrastate hazardous liquid pipeline once every five years, among other regulatory requirements. In broad terms, PHMSA requirements are contained in Federal statute and regulations and set the minimum regulatory requirements on hazardous liquid pipeline operators. Any state, including California, that maintains a certification from PHMSA may impose additional requirements on hazardous liquid pipeline operators. The PHMSA requirements represent minimum requirements that California can build upon. For example, the OSFM recently adopted regulations as directed by Senate Bill 295 (Jackson, 2015) to conduct additional California specific inspections of pipelines and pipeline operators on a more frequent annualized basis. Existing State and Federal laws focus on protection of the health and safety of individuals and the environment. The proposed regulations and enabling legislation seek to further that goal with an emphasis on protecting California's unique coastal environment, through more stringent and preemptive standards not found under existing Federal and State law.

**SPECIFIC PURPOSE AND RATIONALE**

**1. Problem being addressed:** On May 19, 2015, a hazardous liquid pipeline in Santa Barbara County ruptured and released approximately 100,000 gallons of crude oil. Around 21,000 gallons ran down a ravine, under a freeway, and reached the Pacific Ocean near Refugio Beach. Once the spill entered the ocean the impacts spread over 25 miles of coastline and ocean. The harm realized from the release was sizeable in both economic and environmental terms. The total costs of cleanup, economic impacts, Natural Resource Damage Assessment (NRDA), and litigation are still being determined. However, estimated cleanup costs are anticipated to reach \$335 million. Had the pipeline been equipped with automatic shut off valves, remote controlled

sectionalized block valves, or leak detection technology, the impact of the release would have been controlled and limited.

Though the pipeline that was the source of the Refugio Beach release was not under OSFM jurisdiction at the time, the incident highlighted the importance of protecting California's vital natural resources. As a result, Assembly Bill 864 (Williams, Chapter 592, Statute of 2015) (AB 864), codified in California Government Code section 51013.1, established several new statutory requirements for intrastate hazardous liquid pipelines based on a risk analysis conducted by the operator. Some of those statutory requirements include the potential for new, replacement, or existing pipelines to be equipped or retrofitted with best available technology, installation of leak detection technology, automatic shutoff systems, or remote controlled sectionalized block valves. The bill also directs the OSFM to adopt regulations that include, but are not limited to:

- a definition for automatic shutoff systems,
- a process to assess the adequacy of the operator's risk analysis,
- a process for an operator to request confidential treatment of information, submitted in plans and risk analysis submitted, and
- develop a determination of how near to an environmentally and ecologically sensitive area a pipeline must be to be subject to the legislative and regulatory requirements based on the likelihood of a pipeline impacting those areas.

The goal of the legislation and the proposed regulations is to protect environmentally and ecologically sensitive areas and state waters and wildlife by reducing the volume of oil released in the event of a spill. For purposes of the legislation, "oil" means hazardous liquid as defined by Section 195.2 of Title 49 of the Code of Federal Regulations. Hazardous liquid includes oil, crude oil, and refined products, among others.

**2. Anticipated benefits from this regulatory action:** AB 864 and the proposed regulations (EESA Regulations) are designed to reduce the amount of oil released in an oil spill to protect environmentally and ecologically sensitive areas and state waters and wildlife in the Coastal Zone. Through the implementation of the EESA Regulations, state waters and wildlife will be more effectively protected from the resultant harm of an oil spill when compared to existing law. There is no guarantee another spill will not occur. However, the proposed regulations should reduce the consequences of a release and corresponding negative environmental and economic impacts if a spill occurs. Anticipated benefits include, continued access to coastal activities following a spill, fewer injury or death of species and habitat in California's coastal areas, reduced response costs on State, Federal, and local agencies, lesser impacts on ocean fisheries, and the avoidance of potential costs to responsible parties, among others.

**3. Factual Basis/Rationale:** The goal of AB 864 and the EESA Regulations is to reduce the amount of oil released in an oil spill to protect state waters and wildlife. To achieve this goal, the legislature directed the OSFM to adopt regulations that would require hazardous liquid pipeline operators to consider installation of various forms of

best available technology. The legislation itself imposes some requirements on operators, however those requirements are only part of the overall legislation. Specific components of AB 864 require the OSFM to develop definitions, processes, review operator material and studies, and make determinations based on internal expertise. Without regulatory action by the OSFM statutorily defined terms and requirements contained in the legislation would fail to completely meet the goals of AB 864. The OSFM and industry cannot adequately and effectively carry out the legislative mandates of AB 864 without the proposed regulatory action.

## **SUMMARY**

Before beginning the official rule making process under the Administrative Procedures Act, the OSFM conducted several public workshops and meetings with stakeholders to discuss the regulatory objective and requirements of AB 864, solicit specific input on how to achieve the goals of AB 864, receive comments on potential economic impacts, and solicit suggested alternative approaches to implementation. In June 2016, the OSFM presented the newly enacted legislation to operators and provided a summary of the requirements of AB 864. Following the June 2016 meeting, the OSFM convened a stakeholder working group comprised of industry, government, and non-governmental organizations with expertise in hazardous liquid pipelines in California as a resource in developing the proposed regulations. The stakeholder working group convened regularly with meetings held approximately every month with the final meeting held in September 2017.

In January and February 2017, the OSFM conducted three public workshops, which were webcast and made available by teleconference. The proposed regulatory provisions, as proposed at that time, were presented and opened to public comment at those workshops. The three workshops were held in Sacramento (January 5, 2017), Santa Barbara (February 2, 2017), and Huntington Beach (February 16, 2017). Information the OSFM used at these workshops and associated materials are posted on the OSFM website and were distributed through a list of interested parties managed by the OSFM. When updates are made, they are posted to the website and sent to the list of interested parties.

In addition to the public workshops, the AB 864 legislation directed the OSFM to consult with the Office of Spill Prevention and Response (OSPR) about potential impacts to state waters and wildlife in developing the proposed environmentally and ecologically sensitive area regulations. The Office of Spill Prevention and Response's expertise, input, and assistance was instrumental in developing the proposed regulations. The OSFM also presented the proposed regulations to various State and Federal agencies at two quarterly meetings hosted by the United States Environmental Protection Agency (July 12, 2016 and January 10, 2017). Additional presentations were held at the OSFM's annual pipeline safety conferences in 2016, 2017, and 2018. Most recently a presentation and overview of the draft regulations was provided to State and Federal

agencies, industry, and other interested parties at the California State Lands Commission's – Prevention First Conference on September 25<sup>th</sup>, 2018.

Following the workshops, stakeholder meetings, and presentations, the OSFM considered, and where appropriate incorporated, comments in to the proposed regulation.

The proposed regulation will require the following:

- Operators must identify pipelines that are subject to or may be exempt from regulatory requirements based on pipeline proximity to Geographic Information System data depicting the Coastal Zone and Environmentally and Ecologically Sensitive Areas (EESA). Data is available for download and view from the OSFM website under the links titled "EESA Data From OSPR" and "EESA Data From ERMA" here:  
[http://osfm.fire.ca.gov/codedevelopment/codedevelopment\\_title19development](http://osfm.fire.ca.gov/codedevelopment/codedevelopment_title19development)
- Pipeline operators must perform a Risk Analysis on pipelines to determine if a release from a pipeline could impact an EESA. If a pipeline could impact an EESA the operator must evaluate and propose retrofit of the pipeline with Best Available Technology (BAT) that can be applied to reduce the volume of product released.
- The Risk Analysis is submitted to the OSFM for an adequacy assessment, including review for consistency with BAT requirements in statute. For purposes of the proposed regulations, BAT is already defined in statute and means "technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world." Operators should provide justification for BAT selections and conclusions reached in the Risk Analysis. The OSFM shall determine what is BAT and shall consider the effectiveness and engineering feasibility of the technology when making this determination.
- Operators must submit a plan to implement BAT retrofit with completion of the retrofit within 30 months of regulatory adoption.
- Operators must develop maintenance, testing, and training plans for the personnel responsible for oversight and operation of BAT installed on the pipeline.
- Operators are required to review and update the Risk Analysis once every five years to determine if the Risk Analysis continues to limit the consequences of a release from the pipeline, and provide an explanation/justification for not updating the existing risk analysis. Operators shall consider BAT in the justification. A review of a Risk Analysis may be required earlier based on a determination by the OSFM or where newly discovered EESA's could be affected by a release not previously contemplated in the existing Risk Analysis.
- Operators are required to notify the OSFM of any pipeline retrofits, new construction, or replacements of pipelines near an EESA in the Coastal Zone.

- Pipelines that received an exemption from the proposed regulations will become subject to the regulatory requirements in the event a future release impacts an EESA in the Coastal Zone.
- In the event the OSFM's jurisdiction is expanded to include pipelines not originally under OSFM jurisdiction at the time of regulatory adoption, those pipelines will become subject to the regulatory requirements. Pipelines that are converted from interstate to intrastate service will also be subject to the proposed regulations.
- Pipeline operators may request confidential treatment of certain materials submitted in the Risk Analysis and plans for retrofit, including, but not limited to, information regarding the proposed location of automatic shutoff valves or remote controlled sectionalized block valves.
- Failure of an operator to meet the requirements of the proposed regulations may be subject to enforcement under authority conferred in the California Elder Pipeline Safety Act (Government Code sections 51018.6 and 51018.8), or other applicable law.

#### **TECHNICAL, THEORETICAL, AND/OR EMPIRICAL STUDY OR REPORT**

As noted above, in developing the proposed regulations, the OSFM conducted public workshops, convened a stakeholder workgroup, consulted with OSPR, spoke with industry suppliers, and received comments on the proposed regulations. The OSFM also consulted with and received input from the State Fire Marshal's Pipeline Safety Advisory Committee (PSAC). The State Fire Marshal's PSAC consists of representatives from pipeline industry, the fire service, local agencies, and the public. These were conversations only, and there were no documents relied upon in connection with these consultations.

In addition to the sources noted above, the OSFM relied on the following technical, theoretical, and/or empirical studies, and reports in developing the proposed regulations:

1. California Department of Fish and Wildlife – Office of Spill Prevention and Response. California State Oil Spill Contingency Plan, April 2017.
2. California Department of Fish and Wildlife – Office of Spill Prevention and Response. Guidance Document for use in Preparation of Contingency Plans. Identification of Ecological Resources at Risk and Environmentally Sensitive Sites, Title 14 of the California Code of Regulation section 817.04(l), undated.
3. The Standardized Regulatory Impact Assessment (SRIA) and Economic Impact Statement (STD 399) developed by the Office of the State Fire Marshal for the proposed regulations.
4. Alaska Department of Environmental Conservation. Pipeline Leak Detection Technology – 2011 Conference Report, March 2012.
5. Alaska Department of Environmental Conservation. Best Available Technology – 2004 Conference Report, June 2006.

6. Government Accountability Office. Pipeline Safety – Better Data and Guidance Needed to Improve Pipeline Operator Incident Response, January 2013.
7. U.S. Department of Transportation – Pipeline and Hazardous Material Safety Administration (Prepared by Oak Ridge National Laboratory). Studies for the Requirements of Automatic and Remotely Controlled Shutoff Valves on Hazardous Liquids and Natural Gas Pipelines with Respect to Public and Environmental Safety, October 2012 (Revised December 2012).
8. U.S. Department of Transportation – Pipeline and Hazardous Materials Safety Administration (Prepared by Kiefner & Associates, Inc.). Leak Detection Study – DTPH56-11-D-000001, December 2012.
9. U.S. Department of Transportation – Research and Special Programs Administration Office of Pipeline Safety (Prepared by General Physics Corporation). Hazardous Liquid Leak Detection Techniques and Processes, April 2003.
10. U.S. Department of Transportation – Research and Special Programs Administration Office of Pipeline Safety. Surface Hydrology Analysis, March 2003.
11. U.S. Environmental Protection Agency – Region V. Physical Processes Affecting the Movement and Spreading of Oils in Inland Waters, September 1995.
12. National Transportation Safety Board. Supervisory Control and Data Acquisition (SCADA) in Liquid Pipelines. Safety Study NTSB/SS-05/02 November 2005.
13. Santa Clara River Trustee Council, U.S. Fish and Wildlife, California Department of Fish and Wildlife – Office of Spill Prevention and Response. Santa Clara River Exxon Mobil Oil Spill, Natural Resources Damage Assessment and Restoration Plan and Environmental Assessment, March 2013.
14. Santa Clara River Trustee Council, U.S. Fish and Wildlife, California Department of Fish and Wildlife – Office of Spill Prevention and Response. Santa Clara River Arco Oil Spill, Final Restoration Plan and Environmental Assessment, October 2002.
15. Trustee Council, U.S. Fish and Wildlife, California Department of Fish and Game. Restoration Actions Within the San Luis Obispo Creek Watershed – Unocal Oil Spill, Avila Beach. June 1999.
16. California Department of Parks and Recreation, U.S. Fish and Wildlife, California Department of Fish and Game. McGrath State Beach Area Berry Petroleum Oil Spill, Final Restoration Plan and Environmental Assessment, January 2005.
17. California Department of Fish and Wildlife. Refugio Beach Oil Spill Natural Resource Damage Assessment Update, May 2018.
18. California Department of Fish and Wildlife – Office of Spill Prevention and Response. Report on Best Achievable Technology Prevention/Mitigation, December 2016.

19. Pipeline and Hazardous Materials Safety Administration. Pipeline Risk Modeling – Overview of Methods and Tools for Improved Implementation, May 9, 2018 (Draft 1).
20. U.S. Department of Transportation – Research and Special Programs Administration Office of Pipeline Safety. Consequences of HVL Releases, December 2002.

## **NECESSITY**

The proposed regulations add clarity and specificity to the statutorily required action for both the OSFM and the regulated industry. This clarity and specificity is necessary because AB 864 imposes new requirements on the regulated community and on the OSFM. Those requirements direct intrastate hazardous liquid pipeline operators to retrofit or install best available technology on certain pipelines to reduce the amount of oil released in an oil spill to protect environmentally and ecologically sensitive areas and state waters and wildlife.

AB 864 also directs the OSFM to adopt regulations for definitions, processes to assess risk analyses, processes for operators to request confidential treatment of information and documents required in the risk analysis and plans, and to determine how near to an environmentally and ecologically sensitive area a pipeline must be to be subject to the requirements of AB 864. Additionally, the OSFM is charged with determining what is best available technology considering the effectiveness and engineering feasibility of a technology. Best available technology is broadly defined as “technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world.” The determination of what constitutes best available technology and the universe of available technology options is so broad that these two components alone necessitate the adoption of regulations. Furthermore, the statutory requirements are uniquely integrated and entwined with the OSFM’s obligation to promulgate regulations; without the proposed regulations, the statute would fail to meet the goal of AB 864 because the OSFM and industry would have no meaningful tools or common understanding of what is required for compliance purposes. The proposed regulations also include defining additional terms, processes, and requirements not specified by statute to achieve the legislative goals of AB 864.

Importantly, the OSFM is charged with reviewing risk analyses and determining what is best available technology and shall consider the effectiveness and engineering feasibility of the technology proffered by a pipeline operator in achieving compliance with AB 864. The OSFM must review the risk analysis and best available technology for each individual pipeline that is subject to AB 864 requirements because no one pipeline faces the same engineering challenges. The legislation and the proposed regulations recognized the unique characteristics of each pipeline and were designed to be flexible in meeting the engineering demands of each pipeline. The individual characteristics of a pipeline also means that there is no singular, or combined, use of best available technology solution to meet compliance requirements. With an estimated 457 pipeline

risk analysis need to be reviewed, the potential combinations of best available technology are vast. The proposed regulations will assist the regulated community in understanding what data, facts, and internal assessment tools should be used in developing a risk analysis and in proposing best available technology to the OSFM. This understanding is key to the legislation and OSFM's review and assessment. AB 864, absent the proposed regulations, does not contain the necessary specificity in statute to facilitate a concise understanding of the granular information the regulated community must review and provide to the OSFM to achieve compliance.

### **CONSIDERATION OF REASONABLE ALTERNATIVES TO THE REGULATION AND THE STATE FIRE MARSHAL'S REASONS FOR REJECTING THOSE ALTERNATIVES**

The OSFM thoroughly reviewed the proposed regulatory action, including both positive and negative impacts that could be placed on the regulated community. Several alternatives to the proposed regulation were considered. However, none of the alternatives would be more effective in carrying out the purpose of the legislation and proposed regulations or be less burdensome to the affected parties than the proposed regulations. During three public workshops, the OSFM solicited comment on the proposed regulations, including alternative approaches to achieve the statutory mandate. The OSFM considered the following alternatives based on comments received during those public workshops.

#### **Alternative 1: Require Only Automatic Shutoff Valves**

One suggested alternative proposed mandating only a specific type of equipment, Automatic Shutoff Valves, be used by operators to achieve best available technology requirements. This requirement would have been mandatory under the proposed alternative and was ultimately rejected because the complex nature of hazardous liquid pipelines does not lend itself well to a single technology addressing the many issues encountered in pipeline operations. Prescribed technology, upon evaluation, would not meet the flexible needs of uniquely designed and complicated pipeline systems that by their design require different configuration and technology needs. Additionally, future developments in technology could render Automatic Shutoff Valves obsolete and outside the scope of best available technology (BAT) resulting in the axiomatic situation of operators installing technology that did not qualify as best available technology, absent a regulatory or statutory change. Also, the need for a risk analysis, a key requirement of the enabling legislation to assist in identifying BAT, provide much needed background on pipeline operation, information on projected spill reduction, and protection of environmentally and ecologically sensitive areas, would likely be rendered superfluous.

#### **Alternative 2: Require All Pipelines Use Real Time Transient Monitoring**

A second alternative was adapted from a suggestion proffered during one of the workshops, again requiring prescribed technology, in the form of one specific leak detection system across all pipelines in California. This alternative was seen as beyond the scope of the enabling legislation, which emphasized the protection of



the coastal zone in connection to environmentally and ecologically sensitive areas. Although this alternative was rejected as too broad because it would have applied to all pipelines in California regardless of proximity to the coastal zone, a narrowed down version of the alternative was considered. The alternative evaluated considered the requirement that all pipelines located near the coastal zone be equipped with Real Time Transient Monitoring leak detection systems. Similar to Alternative 1 considered above, this approach would have eviscerated the need for each pipeline to conduct a risk analysis and consider appropriate leak detection systems as BAT on a pipeline specific basis. Additionally, this requirement assumes that Real Time Transient Monitoring is BAT for all pipelines without evaluation or consideration of other leak detection technologies. Even if this assumption was true, future developments in technology could render Real Time Transient Monitoring obsolete and outside the scope of BAT resulting in the axiomatic situation of operators installing technology that did not qualify as BAT, absent a regulatory or statutory change. The need for a flexible approach and solution to unique pipeline designs, including leak detection systems, is paramount to the proper application of BAT.

Ultimately both Alternative 1 and Alternative 2 were rejected because prescribed technology may not be the best available technology for all pipeline configurations, now or in the future. Reviewing data, conducting risk analyses, and reaching determinations on what best available technology is in an applied setting demands flexibility in meeting the proposed regulatory requirements based on the enabling legislation. Currently no other regulatory program is in place to ensure pipeline operators use BAT on intrastate pipelines that could impact environmentally and ecologically sensitive areas in the coastal zone. Furthermore, the alternative of no regulatory action would not be in the best interest of the public because the health and safety benefits conferred through the legislation cannot be achieved absent regulatory action. Similarly, the reduction in spill volume and resultant harm to the environment, coastal resources, and coastal businesses is less likely to be achieved if no regulatory action is taken.

#### **REASONABLE ALTERNATIVES – SMALL BUSINESS**

California Government Code section 11342.610 excludes “a petroleum producer, a natural gas producer, a refiner, or a pipeline” from evaluation consideration as a small business. However, the OSFM attempted to assess small business impacts and reasonable alternatives that would lessen any adverse impact on small business. A survey was circulated to all pipeline operators in the State requesting data that would have assisted in evaluating reasonable alternatives and impacts to all businesses, including small businesses. However, due to the minimal number of responses, no meaningful assessment of impact on businesses of any size, including small businesses, could be determined through industry self-reporting. Therefore, the OSFM contacted additional sources, conducted independent research, and utilized internal data to assess reasonable alternatives and impacts.

One of the alternative approaches considered by the OSFM evaluate allowing pipeline operators of varying sizes, including small businesses, gradual implementation time frames for compliance based on operator size and resources. The concept was that the extended time frame would ease adverse regulatory impact depending on the size of the operator. However, this alternative was rejected as unreasonable because the enacting legislation specified timelines by which all hazardous liquid pipelines in California are to achieve compliance regardless of business size. This alternative approach was partially incorporated in the proposed regulations by allowing operators the ability to request an extension of time based on a showing of good cause and subject to review by the OSFM. This provision of the proposed regulations should, based on fact specific circumstances, serve to lessen adverse impacts on all businesses, including small businesses.

It was ultimately determined that no reasonable alternative would be equally effective and less burdensome to affected private persons and small businesses than the proposed regulations. Additionally, the proposed regulations will further the statutory mandates and goals of the legislation while still allowing the OSFM to effectively regulate the hazardous liquid pipeline industry.

#### **EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The OSFM has initially determined that the proposed regulations will not have a significant adverse economic impact on business. Review of facts, documents, testimony, and other evidence indicates that the proposed regulation will likely have an overall economic benefit on business within the State of California. While an economic impact is anticipated, both the regulated industry and other businesses stand to benefit significantly from the proposed regulations through increased sales, revenue, and jobs that would otherwise be lost in the event of an oil spill. Additional benefit will be realized through costs avoided in reduced spill volumes in the event of a release, thereby offsetting adverse economic impact. A detailed discussion of the economic impacts can be found in the Standardized Regulatory Impact Assessment (SRIA) attached as an Appendix.

#### **ECONOMIC IMPACT ANALYSIS AND ASSESSMENT**

The OSFM conducted a Standardized Regulatory Impact Assessment to evaluate possible economic impacts of the proposed regulations. The SRIA evaluated if, and to what extent, the proposed regulations may result in economic impacts to a representative, private person, or business in reasonable compliance with the proposed action. In developing the SRIA, the OSFM considered direct cost and indirect costs based on data gathered from industry, internal expertise, and industry contractors and suppliers, among others. In some cases, assumptions were necessary to complete the economic analysis. This information was modeled using Regional Input-Output Modeling System II (RIMS II) to generate anticipated impacts in the State of California to: employment, exports and imports, the creation or elimination of jobs, Gross State Product, the creation or elimination of new and existing businesses, the expansion of current California businesses, competitive

advantages and disadvantages, increase or decrease in investment in California, incentives for innovation, costs avoided, and benefits to the health and welfare of residents, worker safety, and the environment.

The proposed regulations will have an impact on the ability of the OSFM to carry out its inspection and enforcement authority, however this impact has been offset by the addition of staff and resources. The proposed regulations would ensure compliance with Federal and State regulations, enhance public safety, protect California's vital natural resources, and reduce the risk of future pipeline accidents. Please refer to the SRIA attached as an appendix for further details.

#### **The Creation or Elimination of Jobs within the State of California**

The proposed regulations are expected to result in additional jobs in employment sectors, such as construction, manufacturing, testing, and maintenance. Qualified and skilled pipeline construction jobs are expected to be in higher demand to conduct the appropriate retrofit of pipelines. Additional jobs will likely increase following the initial implementation of the proposed regulations. It is anticipated that some permanent jobs will be created for the continued operation, maintenance, and testing requirements of the proposed regulations. Projections estimated that a total of 1885 jobs will be created in the first three years of regulatory implementation, however it is uncertain how many of the positions will remain permanent once the regulations are fully implemented.

#### **The Creation of New Businesses or the Elimination of Existing Businesses within the State of California**

It is anticipated that the proposed regulations will not significantly impact the creation or elimination of businesses in California. Labor, hardware, and software required to meet compliance requirements in the proposed regulations is typically highly specialized and requires extensive training. Hazardous liquid pipeline construction and retrofit requires personnel to meet regulatory qualifications that could act as a barrier to entry for a new business. However, due to the anticipated increase in demand for qualified personnel it is likely that some new businesses will enter the industry to support pipeline operators in achieving regulatory compliance. It is unlikely that the proposed regulations will result in the creation or elimination of pipeline operators given the extensive costs associated with entering and exiting the hazardous liquid pipeline industry. Discussions with the regulated community also indicate that pipeline operators do not plan on exiting California due to the proposed regulations.

#### **The Expansion of Businesses Currently Doing Business within the State of California**

Those businesses that are currently operating in California and employ specialized personnel required to meet regulatory compliance by pipeline operators may experience growth in overall business. Alternatively, some members of industry have indicated that where labor resources for retrofit are scarce, operators may turn to qualified individuals from out-of-state to install required BAT. Bringing business from

out-of-state may not necessarily impact in-State business expansion and could be beneficial because it creates more in-state competition thereby delivering economic efficiencies. It is unlikely that the proposed regulations will encourage or discourage pipeline operators from expanding their business in California because hazardous liquid pipelines are constructed based on demand to ship product. It is anticipated that pipeline operators will not expand or decrease business operations in California, absent a corresponding increase or decrease in demand to ship product by pipeline, which would be a separate impact outside of the proposed regulations.

**Benefits of the Regulations to the Health and Welfare of California Residents, Worker Safety, and the State's Environment**

The goal of AB 864 and the proposed EESA Regulations is to protect EESAs and state waters and wildlife in the coastal zone by reducing the amount of oil released in an oil spill. Through the implementation of the EESA Regulations, EESAs and state waters and wildlife will be more effectively protected from the resultant harm of an oil spill when compared to existing law. There is no guarantee another spill will not occur. However, the proposed regulations should reduce the consequences of a release and corresponding negative impacts if a spill occurs.

The proposed regulations are anticipated to benefit public health, safety, and general welfare of California residents and businesses, while further protecting the environment and vital natural resources. Additional benefits are also likely to be realized by industry through reduced environmental impacts and an associated reduction in costs resulting from fewer and less sizeable pipeline releases.

By reducing spill size California residents will continue to have access to beaches, habitat, and other recreational activities located in or near the coastal zone, that would have otherwise been eliminated in the event of a larger spill. Tourism and ecotourism may also realize benefits through continued patronage before, during, and after a spill event due to reduced release size. Similar benefits can be found for the regulated industry through costs avoided. This is because cleanup costs following a spill can be significant and are often driven by the size and location of a spill. AB 864 and the proposed regulations seek to reduce spill size and better protect environmentally and ecologically sensitive areas that typically incur higher cleanup costs. Moreover, reduction in spill size may confer the added benefit of reduced exposure to potential human health hazards following a pipeline spill. While compliance with the proposed regulations may impose more immediate costs, long-term benefits to health and welfare, worker safety, and the environment are also realized through the reduction of spill size and cost avoidance.

**Small Business Determination:** California Government Code section 11342.610 excludes “a petroleum producer, a natural gas producer, a refiner, or a pipeline” from consideration as a small business. Because the proposed regulations affect pipelines, a small business determination is unnecessary. However, please see the discussion above under the section titled “REASONABLE ALTERNATIVES – SMALL BUSINESS.”

## **COORDINATION WITH FEDERAL LAW**

Pursuant to the Hazardous Liquid Pipeline Safety Act, the OSFM exercises exclusive safety regulatory and enforcement authority over intrastate hazardous liquid pipelines through certification granted by the United States Secretary of Transportation, California Government Code section 51010, and sections 60104 and 60105 of Title 49 of the United States Code (USC). The OSFM currently holds certification from the Secretary of Transportation, and pursuant to that certification, may adopt additional or more stringent safety standards for intrastate pipeline facilities and intrastate pipeline transportation if the standards are compatible with the minimum standards prescribed under 49 USC sections 60101 et seq. and associated regulations found in Parts 190 – 199 of the Code of Federal Regulations. The OSFM determined that the proposed regulatory action neither conflicts with nor duplicates any Federal statute, regulation, or law applicable to intrastate hazardous liquid pipelines and is consistent with the minimum standards required to maintain certification.

## **INCORPORATED BY REFERENCE DOCUMENTS:**

### **1. Form PSD-103: Notice of Intrastate Hazardous Liquid Pipeline Construction (July 1, 2017)**

To assist with the review of new construction, replacement, and retrofit of any jurisdictional hazardous liquid pipelines, the OSFM developed Form PSD-103 (Notice of AB 864 Intrastate Hazardous Liquid Pipeline Construction). Form PSD-103 requires necessary information from the pipeline operator so that the OSFM can review the pipeline operator's design, construction plans, procedures, and conduct appropriate inspections.

### **2. American Petroleum Institute Recommended Practice 1175, "Pipeline Leak Detection – Program Management" (First Edition, December 2015)**

The American Petroleum Institute (API) is recognized across the pipeline industry and state and federal regulatory agencies as containing an extensive body of knowledge and expertise relating to pipeline operations. API standards are incorporated in regulatory standards by other state regulators, and the Pipeline and Hazardous Materials Safety Administration, the federal counterpart to the OSFM. This existing national industry standard provides guidance and recommended practices to pipeline operators of hazardous liquid pipeline systems when developing and evaluating their pipeline through risk based pipeline leak detection program management processes. Using leak detection technology is considered a core component of achieving the BAT requirements found in AB 864 and the proposed regulations. Incorporating this standard ensures accurate and consistent data related to leak detection programs is being submitted by operators in their risk analysis. The information on leak detection contained in the risk analysis will form part of the basis for review and evaluation of regulatory compliance of an operator.

**3. American Petroleum Institute Recommended Practice 1130, “Computational Pipeline Monitoring for Liquids” (First Edition, September 2002 - Reaffirmed April 2012)**

Similar to API 1175, this existing national industry standard provides guidance and recommended practices that operators should follow when developing and evaluating their pipeline risk analysis to reduce the consequences of a pipeline release. This particular standard focuses on a component of leak detection technology referred to as computational pipeline monitoring (CPM). While API 1175 focuses on the program management of leak detection, this standard focuses on software-based algorithmic monitoring tools used to recognize hydraulic anomalies indicative of a pipeline leak or release. Using leak detection technology, which may include a CPM based leak detection system, is considered a core component of achieving BAT requirements found in AB 864 and the proposed regulations. The information on leak detection contained in the risk analysis will form part of the basis for review and evaluation of regulatory compliance of an operator. Incorporating this standard ensures that accurate and consistent data is being submitted by intrastate hazardous liquid pipeline operators which is used in the review and evaluation of regulatory compliance.

**SPECIFIC SECTION-BY-SECTION ANALYSIS**

**TEXT OF REGULATIONS**

**TITLE 19, DIVISION 1, CHAPTER 14**

**HAZARDOUS LIQUID PIPELINE SAFETY**

**Article 7** is a new article. This section provides the scope, general requirements, and compliance dates for hazardous liquid pipeline operators to follow.

**Necessity:** Because this is a new article and new legislation the preamble provides necessary scope of the regulation, general requirements, and effective dates. This preamble provides the groundwork for the regulated community to understand the requirements necessary for compliance under a new regulatory scheme. Without this section the regulated community may not recognize what pipelines are subject to the article’s requirements or the date by which compliance must be achieved. The authorizing legislation set forth specific dates and deadlines for the OSFM to have completed regulatory adoption and dates by which pipeline operators were required to come in to compliance. The proposed regulations were determined to be major regulations, which necessitated a lengthy and comprehensive economic impact assessment in the form of the SRIA found in the Appendix. The impact, depth, breadth, and implications behind a new and complicated regulatory scheme dictated that the OSFM initially promulgate accurate and effective regulations to avoid multiple regulatory revisions shortly after adoption that would effectively result in the goals of AB 864 and result in spill volume reduction. Consequently, additional revisions to the proposed regulations would be necessary to protect state waters and wildlife, the coastal zone, and environmentally and ecologically sensitive areas at the potential cost of even further

compliance time delays or worse yet, result in regulations that failed to meet the goals of AB 864 as the July 1, 2017 deadline approached. Therefore, the decision was made to promulgate regulations that thoroughly addressed AB 864 requirements in the initial regulatory iteration to avoid the unintended consequences discussed above. Because of the delay associated with the economic analysis and the need to promulgate comprehensive, accurate, and effective regulations, the OSFM was not able to meet the statutory adoption date of July 1, 2017. Time frames for compliance, based on an anticipated effective date of July 1, 2019 have been included in the proposed regulations. The associated time frames for deliverables from the regulated community (e.g. risk analysis, plans, and implementation) in the proposed regulations are consistent with the time frames found in the legislation because the legislature saw it fit to allow the regulated community time to properly comply with the requirements of the proposed regulations once adopted. Retaining the original dates for compliance found in AB 864 would result in the evisceration of the regulated communities time for compliance contemplated by the legislature. Furthermore, retaining the original dates could place the regulated community in non-compliance with the proposed regulations before they are formally adopted because operators were statutorily required to submit risk analysis and plans to the OSFM by July 1, 2018. Alternatively, if the original AB 864 dates were retained, the regulations would need to be retroactively applicable resulting in operators again being in non-compliance. Without proper time to develop deliverables from the regulated community, any material submitted by operators to OSFM to achieve compliance would likely be of little or no use since the standards and requirements found in the proposed regulations are not yet law and operators would be forced to guess what the OSFM would require and review in determining compliance. This preamble and the time frames included are necessary for the OSFM and pipeline operators to meet the time sensitive compliance regime and remain consistent with the legislative intent to afford the regulated community time to implement required actions once the regulations are final.

**Section 2100 - Definitions** is being proposed to add clarity to key definitions, terms, and acronyms used throughout the proposed regulations.

**Necessity:** It is necessary to include these definitions to carry out provisions of AB 864 and the proposed regulations while clarifying the meaning of terms used. Both the OSFM and the regulated community must understand key terms and the meaning attached to those terms to ensure all parties are effectively conveying the same information based on the same understanding of a term. Undefined terms could lead to uncertainty and confusion or inadvertently impact the interpretation of proposed regulations and the authorizing legislation. Including the definitions section in the proposed regulations eliminates potential confusion and adds clarity by placing all relevant definitions and terms in one location immediately preceding the regulatory requirements.

**Subsection 2100(a)(1) “Automatic Shutoff System”** is being proposed to add the definition of an important term used throughout the proposed regulations.

**Necessity:** The authorizing legislation directed the OSFM to define “Automatic Shutoff Systems.” It is necessary to include this definition to carry out the provision of the proposed regulations and provides needed clarification to the regulated community of what an automatic shutoff system is; an automated system not dependent upon human interaction capable of shutting down a pipeline system.

**Subsection 2100(a)(2) “Best Available Technology”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** “Best Available Technology” is defined by the authorizing legislation as “technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill taking into consideration whether the processes are currently in use and could be purchased anywhere in the world.” There are many forms of technology used on a pipeline that could be considered best available technology for one pipeline but when applied to another pipeline that same technology would not represent best available technology based on design, operating conditions, profile, and other factors. This definition is needed to facilitate the easy incorporation of statutorily defined terms in the same location as regulatory defined terms, thereby eliminating confusion. It is necessary to include this definition to carry out the provisions of AB 864 and the proposed regulations.

**Subsection 2100(a)(3) “Check valve”** is being proposed to add the definition of a significant term used in the proposed regulations.

**Necessity:** The term “check valve” is used to further define what an “emergency flow restriction device” means. This term is necessary to explain what a check valve does and how it performs its designed function as it relates to emergency flow restriction devices. There are several different types of check valves that operate based on various design principals, such as a ball valve, but the general principal remains that the valve will automatically close under abnormal operating conditions and prevent fluid from flowing backwards in a pipeline. This reduces drain down volume in the event of a rupture. The definition provided tells operators what the intended purpose of the check valve is, while allowing flexibility in the selection of the design of a check valve that may be appropriate based on pipeline design.

**Subsection 2100(a)(4) “Coastal Zone”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** The primary purpose of the legislation and proposed regulations is the protection of state waters and wildlife located in environmentally and ecologically sensitive areas near or in the coastal zone. Central to protecting



these areas is a consistent and clear understanding of where and what lands and waters constitute the coastal zone. The OSFM elected to use the definition as provided in the California Coastal Act and the area of jurisdiction of the San Francisco Bay Conservation and Development Commission to avoid confusion involved in proposing an alternative definition. Furthermore, because of the substantial availability of coastal zone maps and data already in existence, both the OSFM and the regulated community will know what areas fall within or near the coastal zone under existing law. Understanding where the coastal zone begins and ends is fundamental to determining whether a pipeline will be subject to the requirements of the proposed regulations and is clearly defined by the California Coastal Act. The exclusion of a coastal zone definition could result in differing standards applied by the regulated community and would frustrate the OSFM's duty to effectively apply the proposed regulations and legislation to pipelines in or near the coastal zone.

**Subsection 2100(a)(5) “Computational Pipeline Monitoring”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** The legislation and proposed regulations require pipeline operators to consider the installation or retrofit of various forms of best available technology, including leak detection technology. Computational pipeline monitoring is one form of leak detection technology used to achieve the end goal of ensuring the volume of product shipped at the origin is the same volume received at the end destination. Calculating the volume can be as simple as having a meter on either end of a pipeline and calculating any difference, or rather more sophisticated methods that employ the use of software that monitors temperature, pressure, flow and density, and other equipment inputs from pumps and data sensors. With the goal of the legislation to utilize best available technology it was necessary to define computational pipeline monitoring as software-based to ensure the regulated community understood what type of monitoring was needed when using this technology. This definition adds clarity. Without this definition, pipeline operators may confuse simple meter in and meter out computational pipeline monitoring as satisfying best available technology requirements of the proposed regulations, while the software based versions are the anticipated manner for achieving regulatory compliance in the proposed regulations. It is necessary to include the definition of computational pipeline monitoring so operators clearly understand how compliance will be evaluated and the delineation made by the OSFM amongst types of computational pipeline monitoring.

**Subsection 2100(a)(6) “Emergency flow restriction device”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** The definition of an emergency flow restriction device (EFRD) includes check valves or remote control valves. The description of what types of valves are included in the definition of an EFRD is necessary because the term is used throughout the proposed regulations with specific testing and installation requirements applicable to EFRDs. Without defining what an EFRD operators may not implement and carry out the required testing and installation regiment as envisioned in the proposed regulations.

**Subsection 2100(a)(7) “Environmentally and Ecologically Sensitive Area”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** The enabling legislation requires the OSFM regulations use the same term for “environmentally and ecologically sensitive area” as described in subdivision (d) of Section 8574.7,” of the California Government Code. The description provided for in the definitions section helps clarify how the term is used throughout the proposed regulations that would not be otherwise provided or understood without the description of the term. For example, the Government Code provides a definition of “Environmentally Sensitive Area” in Section 8670.3(f), however the definition is different than the term used in the enacting legislation. Failing to include the correct citation and term description could lead to the regulated community applying inconsistent definitions and terms when attempting to comply with the proposed regulations. Additionally, the term “environmentally and ecologically sensitive area” is a new term used in the Pipeline Safety Act. This term is traditionally applied to areas of the Government Code applicable to the jurisdiction of the Office of Spill Prevention and Response (OSPR), within the Office of Fish and Wildlife, an area not typically enforced by the OSFM. Even though this term is new to the OSFM’s jurisdiction and regulatory authority, the regulated community should be familiar with its scope because operators regularly submit materials and interact with OSPR on requirements related to environmentally and ecologically sensitive areas. It is necessary to include the term and description here to ensure the regulated community knows the applicable realm of flora and fauna that the legislation and the proposed regulations aim to protect is consistent with Section 8574.7 of the Government Code.

**Subsection 2100(a)(8) “Leak Detection System”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** It is necessary to define “leak detection system” to carry out the proposed regulations and AB 864 because the term as used by industry may differ from how the OSFM uses the term. The inclusion of the definition provides clarity and further describes what a leak detection system is for purposes of the proposed regulation. For example, the definition requires an end-to-end application of one technique. This is relevant to the proposed regulations

because an entire pipeline must be covered by the same leak detection system. In some cases, existing pipelines may have only sections of a pipeline that incorporate a leak detection system, leaving other sections of the pipeline unmonitored or monitored by a different leak detection system. Having a leak detection system on one section of a pipeline may not meet best available technology requirement to quickly identify a leak that occurs outside of a monitored pipeline section. Similarly, if multiple leak detection systems are incorporated on a pipeline, this definition ensures that the systems are compatible because they utilize the same technique for leak detection. Including the definition is necessary because it clarifies what leak detection system means and how it is applied to the proposed regulatory requirements.

**Subsection 2100(a)(9) “Near”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** The enabling legislation directed the OSFM determine how “near” to an environmentally and ecologically sensitive area a pipeline must be to be subject to the requirements of the proposed regulations. Near is an amorphous term grounded in uncertainty and often clouded by individual perspective. What is “near” to one person may not be “near” to another. This is especially so when considering geographic data, which is one of the primary tools used in identifying pipelines that may be subject to the proposed regulations. The proposed definition fixes the definition of “near” as within half a mile. The distance attached to this definition is based on analysis of historic releases in California and distances product traveled over terrestrial surfaces following a release from a pipeline. The inclusion of the definition assures uniformity across California and provides regulatory certainty because the definition informs pipeline operators what “near” means, which in turn informs operators what pipelines must be evaluated for regulatory compliance. The definition and its specificity is necessary to remove the inherent uncertainty with allowing individual operators to determine what “near” means in the context of the proposed regulations.

**Subsection 2100(a)(10) “New Construction”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** Operators engage in pipeline construction activities that range in size and complexity from minor preventative maintenance to the entire replacement of hundreds of miles of pipeline. This definition provides the necessary clarification needed to avoid notification of minor construction related projects unrelated to the goals of the AB 864 legislation, which is the notification for new, replacement, and retrofit of pipelines that could impact environmentally and ecologically sensitive areas and state waters and wildlife. Should the definition not be included, pipeline operators and the OSFM would be sending and receiving numerous new construction notifications outside the stated goals of AB 864. The result would likely be an additional requirement that fails to serve the purpose

behind AB 864, while simultaneously burdening both the OSFM and the regulated community with unnecessary compliance obligations. The definition necessarily narrows the field of notification requirements on the regulated community and the OSFM to a known realm of possibilities, pipelines captured by AB 864, as opposed to a general requirement to provide notification for any new construction.

**Subsection 2100(a)(11) “New Pipeline”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** The legislation and proposed regulations focus on three categories of pipelines, new, replacement, and existing pipelines. All three categories will be subject to the same general regulatory and statutory requirements. However, an entirely new pipeline poses uniquely different obstacles necessitating a clearly defined term delineating between a new, replacement, or existing pipeline. The OSFM engineers will be reviewing risk analyses and evaluating BAT proposals by pipeline operators to see if they meet criteria specified by the OSFM. Part of the evaluation will be impacted by whether a pipeline is new, replacement, or existing. By defining what a new pipeline is for purposes of the proposed regulation, pipeline operators will have a clearer understanding of the information and data that should be presented to the OSFM that differs from information and data relevant to a replacement or existing pipeline. The definition is necessary for the regulated community to more effectively craft their risk analyses and BAT proposals in a way that includes relevant information to the OSFM for evaluation, while excluding extraneous information.

**Subsection 2100(a)(12) “Oil”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** Under the Elder California Pipeline Safety Act, the OSFM exercises exclusive regulatory authority over intrastate hazardous liquid pipelines, which includes oil. The legislation further defined “oil” to mean “hazardous liquid” as defined by federal statute found in Part 195.2 of Title 49 of the Code of Federal Regulations. Title 49 Part 195.2 is the federal regulatory counterpart of the Elder California Pipeline Safety Act. Title 49 Part 195.2 defines “hazardous liquid” as meaning “petroleum, petroleum products, anhydrous ammonia, or ethanol.” “Petroleum” is further defined by Part 195.2 to mean “crude oil, condensate, natural gasoline, natural gas liquids, and liquefied petroleum gas.” “Petroleum product” is also further defined by Part 195.2 to mean “flammable, toxic, or corrosive products obtained from distilling and processing of crude oil, unfinished oils, natural gas liquids, blend stocks and other miscellaneous hydrocarbon compounds.” The goal of AB 864 is the protection of environmentally and ecologically sensitive areas from hazardous liquids, including oil, as is specified in the legislation and falls under the jurisdiction of the OSFM. It is necessary to incorporate this definition to carry out the provisions of the legislation and

proposed regulations because the OSFM exercises authority over hazardous liquids, including oil. Including the definition clearly establishes the goal of the legislation, which is the regulation of hazardous liquid pipelines including oil.

**Subsection 2100(a)(13) “Operator”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** It is necessary to include this definition to carry out the provisions of the legislation and proposed regulations because the term “operator” is used in several contexts throughout the pipeline industry. The term operator can include persons working in the field, in a control room, or in the broader context, as is intended here, to be a company or business entity. The definition adds needed clarity and necessary to appropriately apply the enabling legislation and avoid confusion in the regulated community.

**Subsection 2100(a)(14) “Pipeline”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** The OSFM exercises exclusive regulatory authority over intrastate hazardous liquid pipelines as defined in the California Government Code, Chapter 5.5 Section 51010.5 and modified by Section 51013.1. Similar to the definition of “oil” above, the definition of “pipeline” specifies the OSFM’s regulatory jurisdiction and types of hazardous liquid pipelines subject to the Elder California Pipeline Safety Act and the proposed regulations. It is necessary to include this definition to carry out the provisions of the legislation and proposed regulations because pipeline operators must know which of their pipelines are subject to the proposed regulations. Likewise, the proposed definition incorporates those pipelines that operate at reduced pressures, at or under 20 percent of the specified minimum yield strength of the pipe, when the pipeline is located in the coastal zone. This definition is needed because the goal of the legislation is to protect environmentally and ecologically sensitive areas in the coastal zone, and state waters and wildlife using best available technology. Without the inclusion of reduced pressure pipelines in the definition, operators with crude oil pipelines located in the Pacific Ocean or state waters would not need to comply with the provisions of AB 864. Arguably the thrust of the legislation is to protect those coastal resources that are most at risk for significant impact if a pipeline ruptures. Excluding transportation pipelines located in the coastal zone based solely on operating pressure would conflict with AB 864 language directing the OSFM to develop and impose regulatory requirements on pipelines that could impact the very coastal resources the legislation was designed to protect. The inclusion of the definition clarifies the legislative intent to impose requirements on hazardous liquid pipelines under OSFM jurisdiction that could impact the coastal zone if a release occurs. Furthermore, the definition does not expand OSFM jurisdiction to pipelines traditionally regulated by other State and Federal agencies but clarifies what is required by AB 864.

**Subsection 2100(a)(15) “Remote control valve”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** The term remote control valve is included in the definitions because it provides clarity and consistency with State and Federal definitions. Remote control valves can be designed in a variety of ways, including electric, pneumatic, block, or gate valves. Operators are required by the legislation to consider remote controlled sectionalized block valves in considering BAT for installation on pipelines. This definition informs operators that the method or mechanics behind remote control valve design and operation is secondary to achieving the intent of the valve being operated from a remote location located off-site from the installed valve. Remote control valves are typically operated by leak detection systems and/or supervisory control and data acquisition systems and feature some form of communication via fiber optic, microwave, telephone, or satellite. This definition is also used to describe types of emergency flow restriction devices defined above that must be considered in an operators BAT analysis. The description of what types of valves, such as remote control valves, are included in the definition of an EFRD is necessary because the term is used throughout the proposed regulations with specific testing and installation requirements applicable to EFRDs. Without defining what an EFRD operators may not implement and carry out the required testing and installation regiment as envisioned in the proposed regulations.

**Subsection 2100(a)(16) “Replacement Pipeline”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** The legislation and proposed regulations focus on three categories of pipelines, new, replacement, and existing pipelines. All three categories will be subject to the same general regulatory and statutory requirements. However, a replacement pipeline poses uniquely different obstacles necessitating a clearly defined term delineating between a new, replacement, or existing pipeline. The OSFM engineers will be reviewing risk analyses and evaluating BAT proposals by pipeline operators to see if they meet criteria specified by the OSFM. Part of the evaluation will be impacted by whether a pipeline is new, replacement, or existing. By defining what a replacement pipeline is, pipeline operators will have a clearer understanding of the information and data that should be presented to the OSFM that would be different from information and data relevant to a new or existing pipeline. This definition will assist pipeline operators by providing a clear understanding of what a “Replacement Pipeline” is, thereby facilitating regulatory compliance. The definition is necessary for the regulated community to more effectively craft their risk analyses and BAT proposals in a way that includes relevant information to the OSFM for evaluation, while excluding extraneous information.

**Subsection 2100(a)(17) “Retrofit”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** Pipelines may, from time to time, need existing equipment replaced for maintenance, best practices, or other purposes. The definition of retrofit is proposed to clarify the difference between regulatorily required retrofit with BAT and standard pipeline operating activities, including maintenance. This difference is important because some pipelines will require retrofit of BAT on a set schedule, with review of the BAT occurring over a period of years to ensure compliance with the proposed regulations. For example, in between the original retrofit and periodic review, installed BAT may need to be replaced due to normal wear and tear during operations. Alternatively, the OSFM or an operator may identify existing technology equipped on a pipeline does not represent BAT and therefore must be retrofitted with BAT. This definition is necessary for the regulated community to understand that not all replacement activities may be considered retrofit. This definition also confers a benefit on the pipeline operators by allowing flexibility in regulatory compliance and periodic review of BAT following a pipeline’s original retrofit with BAT.

**Subsection 2100(a)(18) “Supervisory Control and Data Acquisition”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** It is necessary to include this definition to carry out the provisions of the legislation and proposed regulations because Supervisory Control and Data Acquisition (SCADA) is one of the main components of BAT and leak detection systems as well as the remote operations for many petroleum pipelines. SCADA systems monitor, process, transmit, and display pipeline data to a controller in a control room. Various computer software programs are available to analyze the information and issue an alarm when a leak is detected. Due to the large number of available SCADA systems that may meet BAT for the proposed regulations, it was necessary to provide a universal description of what the OSFM considers to be a SCADA system instead of listing specific vendors, techniques, or SCADA systems. Similarly, the broad definition of SCADA will assist the regulated community in compliance with the proposed regulations because pipeline systems are all designed differently. A SCADA system that is considered BAT on one pipeline may not be considered BAT on a different pipeline. The enabling legislation requires pipeline operators to consider leak detection technology to reduce the volume of a spill, SCADA is an integral part of any leak detection technology and the proposed regulations, therefore it is necessary to include this definition for clarity purposes.

**Subsection 2100(a)(19) “State Waters”** is being proposed to add the definition of a significant term used throughout the proposed regulations.

**Necessity:** One of the goals of the enabling legislation is the protection of state waters and wildlife. To avoid confusion and add clarity, the definition of “State Waters” found in Section 8670.3 of the California Government Code was used. Because AB 864 was originally drafted to fall under the Oil Spill Prevention and Response Act, it follows to reason that the definition of State Waters already provided in the Oil Spill Prevention and Response Act should be used. Crafting a new definition would only contribute to confusion on a term that is already defined. The definition of what comprises “state waters” is a significant tool for determining whether a pipeline is subject to the proposed regulations. The definition is necessary, because it guides the regulated community toward identifying applicable pipelines while narrowing the field of potential pipelines subject to the proposed regulations. Without the inclusion of the definition the regulated community may not properly identify state waters and inadvertently fail to identify pipelines subject to the proposed regulations and fail to meet the legislatively stated objective of protecting state waters.

**Section 2101 – Incorporated By Reference** is being proposed to incorporate by reference, the form, the procedure, and industry standards that shall be used for meeting the proposed regulatory requirements.

**Necessity:** The subsections state which standards are being incorporated by reference and the form operators are required to submit to the OSFM.

**Subsection 2101(a)(1) and (2)** identifies the two industry and national recommended practice standards that should be used by intrastate hazardous liquid pipeline operators during their risk analysis process.

**Necessity:** The two standards are recognized by industry to ensure that accurate and consistent data is used by operators during their risk analysis. Some operators currently use the identified standards and should be familiar with the content of the publications already. However, following the standards identified in this subsection should ensure pipeline operators are implementing consistent practices across industry. Additionally, the standards will be used by the OSFM in assessing regulatory compliance, therefore the regulated community benefits from known factors that could impact their compliance obligations. Incorporating these recommended practice standards should lead to more thorough risk analyses by operators and correspond to a reduction in spill volumes consistent with the goals of the enabling legislation.

**Subsection 2101(a)(3)** identifies the proposed PSD-103 form that operators will be required to submit to the OSFM. The form solicits necessary information so the OSFM can review the operator’s design, construction plans and procedures, and conduct appropriate inspections for new construction and retrofit of pipelines.

**Necessity:** This subsection is required to comply with the legislative mandate found in Section 51013.1(d) of the Government Code, which requires that



pipeline operators notify the OSFM of any new construction or retrofit of a pipeline subject to the proposed regulations. Without the form there would be confusion on how to notify the OSFM of construction projects.

**Subsection 2101(a)(4)** informs operators that the terms and provisions of the regulations contained in the Article shall control if conflicts arise between the incorporated documents and the regulations.

**Necessity:** This subsection is necessary because there may be unintended conflicts between the documents incorporated by reference and the language proposed in the regulations and Article. Every attempt was made by the OSFM to ensure that no conflicts existed or were addressed in the proposed language, however this provision provides the clarity of controlling authority needed by the regulated community in the event an unanticipated conflict arises. Without this provision operators and the OSFM could experience unintended difficulties in identifying standards or requirements that conflicted across documents incorporated by reference and the language of the proposed regulations.

**Section 2102 – Identifying Pipelines Subject To This Article** describes the responsibility of operators to identify pipelines subject to the proposed regulations through considering certain information and data sets of defined terms (e.g. coastal zone, environmentally and ecologically sensitive area, and near). The provisions of this section were used by the OSFM to develop data relevant to identifying geographic and environmental features that will determine if a pipeline falls within the purview of AB 864 and the proposed regulations.

**Necessity:** The operator is required to consider many factors when determining if a pipeline is subject to the proposed regulations. This section is necessary to inform and educate operators on how to identify pipelines subject to the proposed regulations and provides detail and specificity not found in the statute through analysis of a confluence of key factors, such as coastal zone boundaries and environmentally and ecologically sensitive area locations, that are determinative of a pipeline being subject to the proposed regulations. The important focus of this section is that a pipeline location is secondary in the determination of regulatory applicability. Operators should identify geographic features (coastal zone) and environmental and ecological sensitive areas first, then identify a pipelines proximity and applicability of the proposed regulations. The data sets identified in the proposed regulations will assist operators in identifying pipelines subject to the proposed regulations. It is necessary to include this section because the data sets identified could evolve and change over time emphasizing the fact that diligence on the part of the operators should be exercised when researching, developing, and identifying pipelines that are subject to the proposed regulations.

**Subsection 2102(a)** explains the factors and information in identifying pipelines subject to the proposed regulations.

**Necessity:** This subsection is necessary because it provides detail not found in statute that will determine if a pipeline is subject to the proposed regulations. By applying the data information in this subsection operators will be able to build out a map with known geographic information systems (GIS) data that can be used to identify pipelines subject to the proposed regulations. The data that should be considered when an operator identifies pipelines covered by the proposed regulations include: the Coastal Zone boundary, EESA location, how near a pipeline is to the Coastal Zone or an EESA, and whether a pipeline intersects an EESA or the Coastal Zone.

**Subsection 2102(a)(1)** requires operators to identify the Coastal Zone boundary.

**Necessity:** This subsection is necessary to implement one of the goals of the legislation, protection of environmentally and ecologically sensitive areas in the coastal zone. The coastal zone definition is provided in the proposed definitions section and is applied here in the form of GIS data. This data is not always a fixed point or uniform distance represented on a map and can vary from county to county. The statute does not mention the variability in the Coastal Zone, therefore this subsection plays an important role in properly applying the intent of the legislation by further clarifying the Coastal Zone component.

**Subsection 2102(a)(2)** requires operators to identify the location of known EESAs

**Necessity:** This subsection is necessary because EESAs are one of the primary resources that the legislation is attempting to protect from harm in the result of a spill. An operator will be able to determine if a pipeline is near enough to an EESA, along with the considerations contained in the other subsections of 2102, to be subject to the proposed regulations. EESA data is managed by the Office of Spill Prevention and Response (OSPR). Many of the operators are already familiar with finding EESA data because they are required to maintain contingency plans with OSPR that incorporate protection of EESAs in responding to a spill. Additionally, the enabling legislation requires the OSFM to use the same term for an EESA as described by California Government Code Section 8574.7, which is administered by OSPR. EESAs are broadly defined by code and regulations adopted by OSPR to include plants, animals, rivers, coastal resources, and other state waters and wildlife deemed important enough to protect.

**Subsection 2102(a)(3)** informs operators that crude oil pipelines located in the Coastal Zone that operate by gravity or at a stress level of 20 percent or less of the specified minimum yield strength of the pipe are presumptively subject to the requirements of the proposed regulations.

**Necessity:** This provision is necessary because the primary goals of AB 864 are to protect environmentally and ecologically sensitive areas in the Coastal Zone

and state waters and wildlife. The focus of the authorizing legislation is on protection of these resources not on the operating pressure of a particular transportation pipeline at issue. This provision provides added clarity to achieve the goals of AB 864, which is the applicability of the legislation and proposed regulations to transportation pipelines in the Coastal Zone regardless of operating pressure. Without this provision operators, may inadvertently exclude crude oil transportation pipelines located in the Coastal from the proposed regulations because the pipeline is operated by gravity or at a stress level of 20 percent of the specified minimum yield strength of the pipe. The OSFM has not applied more stringent State regulatory standards to those lower pressure pipelines carrying crude oil since the mid 1990's, even though the OSFM was originally given the authority to do so in the Pipeline Safety Act of 1981. AB 864 acted as a narrowly tailored piece of legislation to restore the OSFM's original authority to impose more stringent State standards, as specified in AB 864, on transportation pipelines located in the Coastal Zone regardless of operating pressure. Including this provision stating that transportation pipelines located directly in the Coastal Zone, regardless of the operating pressure, meets the goals of AB 864 and provides clear instruction to operators of the scope and application of the legislation and proposed regulations. Failure to include this provision could limit the application of the proposed regulations and potentially exclude lower pressure pipelines located in one of the most environmentally sensitive areas of California from meeting legislative requirements. Additionally, failure to include this provision could incentivize a race to the bottom for pipeline operators to simply reduce operating pressure on pipelines in an attempt to avoid meeting compliance requirements thereby circumventing the goals of AB 864. This provision is necessary to clearly indicate to the regulated community the application and scope of AB 864 and the proposed regulations.

**Subsection 2102(a)(4)** requires operators to evaluate whether an EESA is part of or shares a connection with the Coastal Zone.

**Necessity:** This subsection is necessary in identifying areas that could be impacted by a potential release from a pipeline. The enabling legislation's goal of protecting EESAs in the Coastal Zone necessitates that a relationship or connection exist between an EESA and the Coastal Zone. The connection is key in determining where an EESA terminates outside of the Coastal Zone. For example, some rivers have been identified as EESAs and can extend inland beyond the Coastal Zone for significant distances. Should a spill from a pipeline enter a river outside the Coastal Zone, the impacts from the spill could still impact the Coastal Zone, as demonstrated by past releases. Describing how EESAs are applied in the context of GIS provides the necessary instruction that operators must utilize to determine which pipelines are subject to the proposed regulations.

**Subsection 2102(a)(5)** requires operators to evaluate the EESA and Coastal Zone data to determine if a pipeline(s) intersects resources represented in the data, if so the pipeline is subject to the proposed regulatory requirements.

**Necessity:** Any pipeline that intersect an EESA in the Coastal Zone or intersects an EESA with a connection to the Coastal Zone is presumed subject to the proposed regulatory requirements. This subsection is necessary to effectuate one of the goals of the legislation, protection of EESAs and the Coastal Zone. If a pipeline intersects an EESA in the Coastal Zone and suffers a spill, those resources will be negatively impacted to some extent. By clearly stating that a pipeline intersecting an EESAs and the Coastal Zone operators will know what pipelines must be compliant and which resources must be protected.

**Subsection 2102(a)(6)** uses the definition of “Near,” within ½ mile, and further details how to apply that definition to specific types of EESA data, which then could lead to a pipeline being subject to the proposed regulations.

**Necessity:** The enabling legislation directed the OSFM to render a determination of how “Near” to an EESA a pipeline must be to be subject to the requirements of the statute based on the likelihood of the pipeline impacting those areas. A proximity of within ½ mile of an EESA was selected as the proposed distance for the definition of “Near.” This distance was based on experience, professional judgement, and the distances historical releases have traveled across geographic features before stopping. The subsection further describes how to apply the ½ mile definition of Near to EESAs represented by points on maps or by defined areas (polygons and lines). The description is necessary because some EESA data is represented by points instead of defined geographic areas because of the need to protect endangered species, plants, or other resources from destruction or disturbance. This subsection serves to implement the legislative mandate to determine what “Near” is, while also satisfying the intent to protect EESAs, the Coastal Zone, and state waters and wildlife.

**Section 2103 – Exemption For Pipelines Located Outside The Coastal Zone** is being proposed to allow operators an opportunity to request an exemption from the proposed regulations for pipelines that are not near the Coastal Zone. Phrased another way, operators with pipelines located more than ½ mile outside of the Coastal Zone may seek an exemption from applicable portions of the proposed regulations. This section would also require operators to submit a risk analysis consistent with the factors identified in Section 2111 (Risk Analysis) that demonstrates a spill from a pipeline will not impact the Coastal Zone portion of an EESA, time frames for submitting the risk analysis, and how the OSFM will evaluate risk analysis exemption requests.

**Necessity:** Some pipelines that may be subject to the proposed regulations are located inland from the Coastal Zone boundary beyond the ½ mile definition of near used in the proposed regulations. This is because EESAs, such as rivers, extend inland beyond the Coastal Zone and do not terminate at the Coastal Zone boundary. A release from a

pipeline outside of the coastal zone into a river or other EESA can act as a transport mechanism to deliver hazardous liquids and oil to the coastal zone. This section is being proposed to afford operators the opportunity to seek an exemption from the proposed regulations for pipelines located beyond the Coastal Zone boundary and the ½ mile definition of near. One of the goals of AB 864 is the protection of EESAs in the Coastal Zone. This section looks to that goal and balances the possibility that a pipeline located beyond the Coastal Zone may or may not impact an EESA in the Coastal Zone. Operators seeking an exemption must demonstrate to the OSFM, through the submission of a risk analysis, that a potential release from a pipeline will not impact an EESA in the Coastal Zone. The OSFM will evaluate the risk analysis consistent with the applicable provisions of the proposed regulations assuring that a thorough review of exemption materials is conducted and evaluated with the detail of any other risk analysis submitted to the OSFM. Including this section is necessary for the OSFM to ensure that operators are complying with legislative and regulatory requirements to protect EESAs and the coastal zone, while making sure OSFM and operator resources are efficiently dedicated to pipelines that could impact an EESA in the Coastal Zone.

#### **Section 2104 - Exemption For Pipelines With Existing Best Available Technology**

is being proposed to allow operators an opportunity to request an exemption for pipelines that may already be equipped with best available technology and therefore need not comply with all provisions of the proposed regulations. This section would also require operators to submit a risk analysis consistent with the factors identified in Section 2111 (Risk Analysis) that demonstrates a spill from a pipeline will not impact the Coastal Zone portion of an EESA, time frames for submitting the risk analysis, and how the OSFM will evaluate risk analysis exemption requests.

**Necessity:** Similar to Section 2103, some existing pipelines may not need to comply with all the requirements of the proposed regulation. Here the exemption may be granted based on the pipeline in question already being equipped with best available technology. One of the goals of AB 864 is the retrofit of existing pipelines with best available technology. This section looks to that goal and balances the possibility that a pipeline may already be equipped with best available technology. Operators seeking an exemption must demonstrate to the OSFM, through the submission of a risk analysis, that best available technology is currently installed on the pipeline. The OSFM will evaluate the risk analysis consistent with the applicable provisions of the proposed regulations assuring that a thorough review of exemption materials is conducted and evaluated with the detail of any other risk analysis submitted to the OSFM. Including this section is necessary for the OSFM to ensure that operators are complying with legislative and regulatory requirements to protect EESAs in the coastal zone, while making sure OSFM and operator resources are dedicated to pipelines that are required to retrofit with best available technology.

#### **Section 2105 – Future Releases From Jurisdictional Pipelines Impacting Environmentally And Ecologically Sensitive Areas In The Coastal Zone** is included

because several provisions of the regulations allow for the exemption of a pipeline from the proposed regulatory requirements. This section contemplates the possibility that future spills cannot be eliminated. Importantly, where a spill occurs on a pipeline that was exempt from or not contemplated as part of the proposed regulations and the spill impacts an EESA in the coastal zone that pipeline will become subject to the requirements of the proposed regulations. In the event of a spill the consequences can be analyzed and compared to risk analysis and assumptions made in deliverables required under AB 864 and the proposed regulations.

**Necessity:** One of the goals of the legislation is the reduction of spill volume and to protect environmentally and ecologically sensitive areas, and state waters and wildlife. Including this section will assist the OSFM in achieving that goal by verifying that best available technology, risk analysis, and assumptions were consistent with projected spill reduction volume and protection of EESAs. Review of actual spills is necessary for the OSFM to confirm pipelines are compliant with the proposed regulations and will facilitate an ongoing improvement process to address inadvertent omissions, unanticipated pipelines impacting EESAs, and potential inadequacies in the regulations or in materials submitted by the regulatory community.

**Subsection 2105(a)(1)** is included because under the proposed regulations some pipelines within OSFM jurisdiction may not be subject to all the requirements proposed. This subsection provides that if a pipeline that was not considered subject to the proposed regulations suffers a release that impacts an EESA in the Coastal Zone, that pipeline will be required to comply with all provisions of the proposed regulations. Alternatively, some pipelines subject to the proposed regulations may be exempt from the requirements if the operator meets the conditions specified in Section 2103 (Exemption for Pipelines Located Outside the Coastal Zone) or Section 2104 (Exemption for Pipelines With Existing Best Available Technology) based on OSFM review and approval. This subsection further specifies that previously exempt pipelines suffering a release that impacts an EESA in the Coastal Zone will be required to comply with all provisions of the proposed regulations. For pipelines that received an exemption, this subsection will require pipeline operators to submit a report that analyzes the pipeline failure and the risk analysis previously submitted to the OSFM.

**Necessity:** Some of the EESAs with a connection to the Coastal Zone extend inland beyond the ½ mile definition of Near found in the proposed regulations. In some cases, EESAs such as rivers, extend over 60 miles inland. In the past, there have been several pipeline releases in California near or in rivers identified as EESAs that occurred over 36 miles inland. In some cases, oil traveled approximately 12 miles towards the coastal zone before being stopped from further migration. It is uncommon for a release miles beyond the Coastal Zone to reach the Coastal Zone, hence the provisions found in Section 2103 allowing an operator to seek an exemption for pipelines beyond the Coastal Zone by demonstrating a spill will not impact the Coastal Zone portion of an EESA.

However, the historic releases and the distances that hazardous liquids can travel in a river illustrate the potential for a spill to be transported significant distances and potentially impact an EESA in the Coastal Zone. This subsection is being proposed to address the possibility and consequences of a pipeline release outside the coastal zone impacting an EESA in the Coastal Zone. For a pipeline that received an exemption, a release that impacts the Coastal Zone portion of an EESA will subject the pipeline to the requirements of the proposed regulations. Included in this subsection, for exempt pipelines, is the requirement that a pipeline operator submit a report to the OSFM that analyzes the pipeline failure, compares that failure to the risk analysis submitted, address the failure of the pipeline to meet risk analysis expectations, and evaluate other pipelines that received an exemption to apply lessons learned from the release to other risk analyses. Requiring operators to submit the report for exempt pipelines described in this subsection will identify weaknesses in the program, assist in evaluating performance of models and assumptions used to develop risk analyses, and ensure the goal of protecting state waters and wildlife and EESAs in the Coastal Zone is met. Where warranted, this information can be incorporated in to changes to the regulatory scheme to further the goals of AB 864. This section is necessary for the OSFM and the regulated community to assess risk analyses, plans, data, research, estimates, projections, and other tools that indicated a release from an inland pipeline would not impact the Coastal Zone portion of an EESA. Furthermore, where a pipeline was not contemplated to be subject to the proposed regulations but impacts an EESA in the coastal zone, it is necessary that that pipeline meet the goals and requirements of AB 864 by bringing a pipeline in to the proposed regulatory scheme in the future.

**Subsection 2105(a)(2)** is being proposed, similar to the preceding subsection, to require an operator whose pipeline was subject to the requirements of this provision and suffers a future release that impacts an EESA in the Coastal Zone, to provide a report to the OSFM analyzing the release in relation to the hazardous liquid pipeline operator's risk analysis.

**Necessity:** Similar subsection 2105(a)(1), this subsection will require a pipeline that was subject to the proposed regulations to evaluate the results of a future release in comparison to the risk analysis submitted to the OSFM. This provision is necessary for the OSFM and operators to learn from risk analysis, assumptions, and other evaluation tools that lead to a pipeline failing to meet the anticipated benefits projected in spill reduction or modeling, among others. Incorporating the lessons learned from a pipeline release is necessary to ensure best available technologies are performing as anticipated and will assist in identifying potential programmatic and operator failures in evaluating compliance.

**Subsection 2105(a)(3)** is being proposed to allow the OSFM to identify additional requirements for inclusion in the report required by this Section based on unique factors and consequences of each individual pipeline release that impacts an EESA in the Coastal Zone.

**Necessity:** No single pipeline release is identical and may require consideration of other factors not identified in the proposed regulations or utilized under failure analysis techniques implemented at the time of adoption. It is necessary for the OSFM to have flexibility in requiring additional factors included in the report to incorporate learned experiences, new techniques, and to further achieve the goal of selecting best available technology through performance evaluation under actual release conditions that may not be contemplated in the proposed regulations.

**Subsection 2105(a)(4)** is being proposed to require the submission of a new risk analysis and implementation plan within 12 months from the time of a pipeline release. Operators will have 30 months to complete retrofit of a pipeline with best available technology found in a risk analysis or plan approved by the OSFM.

**Necessity:** Evaluation of a spill is only part of achieving the goal of spill reduction. This subsection is necessary because it allows the OSFM and operators to address inadequate risk analysis and implement change to ensure best available technology, spill volume reductions, and the goals of AB 864 are actually met and implemented in a timely manner. The 12-month and 30-month time frames are consistent with the requirements found in the authorizing legislation.

**Section 2106 – Intrastate, Interstate, and Other Non-Jurisdictional Pipelines** is being proposed to clarify that non-jurisdictional pipelines that become jurisdictional to the OSFM are required to comply with the requirements of AB 864 and the proposed regulations. This section also specifies the time frame for operator compliance based on the date a pipeline becomes jurisdictional to the OSFM.

**Necessity:** The OSFM's jurisdiction over pipelines is specified by statutory provisions and associated regulations found in California Government Code sections 51010 et. seq. Statutory changes could result in the expansion of the OSFM's jurisdiction to pipelines previously excluded from the proposed regulatory requirements. Additionally, interstate pipelines, which are not subject to OSFM jurisdiction, have been reclassified as intrastate pipelines in the past. A pipeline that becomes jurisdictional to the OSFM is subject to all applicable statutory and regulatory requirements in addition to the requirements specified in the proposed regulations. This section gives operators a time frame of 12 months to submit a risk analysis and implementation plan and a total of 30-months to implement the findings of the risk analysis, following review by the OSFM. The time frames are consistent with proposed regulatory requirements found in this new Article and was derived from time frames specified in the AB 864 legislation. It would seem counter intuitive to reclassify a pipelines' jurisdiction to the OSFM, while



potentially allowing those pipelines to escape the goals of spill volume reduction, protection of EESAs in the Coastal Zone and state waters and wildlife, as specified in AB 864, simply because a pipeline became jurisdictional to the OSFM following legislative and/or regulatory adoption. Additionally, this section is required by language in AB 864 that provides for the installation of best available technology on any new or replacement pipeline and to operators of existing pipelines. The legislature intended pipelines subject to AB 864 and the proposed regulations to apply to pipelines under OSFM jurisdiction regardless of the time frame in which the pipeline came in to existence or when a pipeline became jurisdictional to the OSFM. Whether a pipeline is jurisdictional to the OSFM now or in the future and whether a pipeline is new, replacement, or existing, is relevant for purposes of determining the applicability of certain provisions of the proposed regulations. However, once a pipeline becomes jurisdictional to the OSFM, it must meet all applicable requirements of AB 864 and the proposed regulations. This section is necessary to clarify applicability of the proposed regulations and attain the goals of AB 864 if a pipeline becomes jurisdictional to the OSFM in the future.

**Section 2107 – Relocation of Pipelines** is being proposed to clarify that a pipeline relocation is not considered a new or replacement pipeline.

**Necessity:** It is necessary to clarify the term “relocation” to provide clarity and avoid confusion with the already defined pipeline terms, “new pipeline” and replacement pipeline” found in the proposed regulations. The already defined terms can also be found in the phrase “new or replacement pipeline.” In some scenarios small sections of a pipeline may need to be moved from an existing location due to construction projects, changes to or expiration of easement agreements, or other unanticipated reasons. This Section differentiates the intentional use of “relocation” of existing pipelines from, “new or replacement pipelines.” This differentiation is necessary for pipeline operators to clearly understand that construction of new pipelines or the replacement of large portions of pipelines will not be treated as a relocation, but instead will be treated as an existing pipeline. A relocation may not be subject to all parts of the proposed regulations but may be required to comply with certain requirements because it is an existing pipeline. For example, if the relocation of a pipeline results in significant changes to pipeline operations or the profile of the pipeline (procedures, volume, pressure, etc.), the relocated pipeline will be subject to requirements found in Section 2117 (Risk Analysis Update and Review) if a risk analysis has already been submitted, or Section 2111 (Risk Analysis) where a risk analysis has not yet been submitted. This section adds the clarity needed to inform operators that a relocation may still require compliance with the proposed regulations even though a relocation project is not considered a “new or replacement pipeline.”

**Section 2108 – Timing for Compliance and Pipeline Prioritization** is being proposed to clarify compliance, deliverable dates, and other timing requirements found in the authorizing legislation and the proposed regulations.

**Necessity:** In some cases, deliverable dates found in the authorizing legislation have already passed, making it impossible for the OSFM and the regulated community to meet proposed regulatory requirements by dates identified in statute. For an extensive discussion of timing and compliance date issues see the necessity discussion provided above for the preamble to the proposed Article 7. This section is necessary to rectify differences between dates for adoption found in the authorizing legislation and compliance dates found in the proposed regulations.

**Subsection 2108(a)** is being proposed to include a date of compliance for new or replacement pipelines to use best available technology by January 1, 2020.

**Necessity:** It is necessary to include the date of compliance for operators because the original adoption date for the proposed regulations found in statute was July 1, 2017. The OSFM did not meet the regulatory adoption deadline. However, the authorizing statute provides that new or replacement pipelines would be required to use BAT by January 1, 2018, five (5) months after the OSFM was instructed to adopt the statutorily required regulations, a date that has already passed. The regulations that OSFM is adopting will have an impact on new and replacement pipelines. Therefore, it is reasonable to apply the same compliance time frames provided by statute to the proposed regulations. Compliance for new and replacement pipelines is set for January 1, 2020 based on anticipated regulatory effective date of July 1, 2019. The proposed regulatory provisions, definitions, and procedures will affect pipeline risk analysis and other components central to the goals of the AB 864 legislation. Requiring a new or replacement pipeline to comply with regulatory provisions that have yet to be adopted would seem impractical, if not impossible, for both the OSFM and the regulated community to evaluate or achieve compliance. This is largely because those standards and compliance requirements have yet to be adopted and will significantly drive the direction of risk analyses and other deliverables. Absent standards and compliance requirements needed by regulation, operators cannot meaningfully comply with the legislation or proposed regulations. This section is necessary to provide operators a clear understanding of compliance dates while preserving the legislative time frame contemplated to afford operators an opportunity to meaningfully comply.

**Subsection 2108(b)** is being proposed to include the date of compliance for existing pipelines to submit a risk analysis and plan to retrofit with best available technology by July 1, 2020.

**Necessity:** It is necessary to include the date of compliance for operators because the original adoption date for the proposed regulations found in statute was July 1, 2017. The OSFM did not meet the regulatory adoption deadline. However, the authorizing statute provides that existing pipelines would be required to submit a risk analysis and plan to retrofit with BAT by July 1, 2018, twelve (12) months after the OSFM was directed to adopt the statutorily required regulations. The regulations that OSFM is adopting will have an impact on

existing pipelines. Therefore, it is reasonable to apply the same compliance time frames provided by statute to the proposed regulations. Compliance for existing pipelines is set for July 1, 2020 based on anticipated regulatory effective date of July 1, 2019. The proposed regulatory provisions, definitions, and procedures will affect pipeline risk analysis and other components central to the goals of the AB 864 legislation. Requiring an existing pipeline to comply with regulatory provisions that have yet to be adopted would seem impractical, if not impossible, for both the OSFM and the regulated community to evaluate or achieve compliance. This is largely because those standards and compliance requirements have yet to be adopted and will significantly drive the direction of risk analyses and other deliverables. Absent standards and compliance requirements needed by regulation, operators cannot meaningfully comply with the legislation or proposed regulations. This section is necessary to provide operators a clear understanding of compliance dates while preserving the legislative time frame contemplated to afford operators an opportunity to meaningfully comply. Furthermore, keeping the original compliance dates would shorten or could potentially eliminate the amount of time operators would have to develop risk analyses and retrofit plans resulting in the unusual circumstance of a pipeline being out of compliance as soon as the proposed regulations are effective. This section is necessary to provide operators a clear understanding of compliance dates.

**Subsection 2108(c)** is being proposed to include the date of compliance for existing pipelines to complete retrofit with best available technology by January 1, 2022.

**Necessity:** It is necessary to include the date of compliance for operators because the original adoption date for the proposed regulations found in statute was July 1, 2017. The OSFM did not meet the regulatory adoption deadline. However, the authorizing statute provides that existing pipelines would be required to complete retrofit with BAT by January 1, 2020, thirty (30) months after the OSFM was supposed to adopt the statutorily required regulations. Therefore, it is reasonable to apply the same compliance time frames provided by statute to the proposed regulations. The regulations that OSFM is adopting will have an impact on existing pipelines. Compliance for existing pipelines is set for January 1, 2022 based on anticipated regulatory effective date of July 1, 2019. The proposed regulatory provisions, definitions, and procedures will affect pipeline risk analysis and other provisions of the legislation. Requiring an existing pipeline to comply with regulatory provisions that have yet to be adopted would seem impractical, if not impossible, for both the OSFM and the regulated community to evaluate or achieve compliance. Additionally, keeping the original compliance dates would shorten or could potentially eliminate the amount of time the regulated community would have to develop risk analysis and retrofit plans, among other requirements. This section is necessary to provide operators a clear understanding of compliance dates.

**Subsection 2108(c)(1)** is being proposed to state that it is the pipeline operator's responsibility to determine the priority of existing pipeline retrofit and outline factors that should be considered when prioritizing.

**Necessity:** By clarifying factors that operators should consider when conducting retrofit priority, the proposed subsection seeks to achieve the legislative goal of protecting EESAs and the coastal zone through pipeline prioritization. If multiple pipelines are required to comply with the proposed regulations, the pipelines with the greatest potential to adversely impact an EESA or the coastal zone should be given priority, based on an operator's evaluation of: pipeline risk to EESA, pipelines in the coastal zone, and pipelines located outside the coastal zone that could result in greater harm to an EESA than those located within the coastal zone. It is possible that the number of anticipated pipeline retrofits may exceed available equipment or labor supplies to conduct all retrofit requirements simultaneously. This subsection is necessary because it focuses on the primary goals of AB 864, protection of environmental resources, in the event personnel, needed equipment, or other logistical issues hinder the execution of multiple pipeline retrofits simultaneously.

**Section 2109 – Use of Best Available Technology** is being proposed to clarify that BAT must be used on pipelines subject to the proposed regulations, clarifies what types of technologies may constitute BAT, identifies sections of the proposed regulations that specify processes for submitting operator risk analysis, and factors the OSFM will use in evaluation of BAT.

**Necessity:** The enabling legislation specifies certain technologies that must be considered and evaluated as BAT, while allowing operators the ability to consider technologies that are currently in use anywhere in the world. The OSFM is charged with developing a process to evaluate proposed BAT and must consider certain factors in assessing BAT. Given the realm of possible options available as BAT (anywhere in the world), this section is necessary to provide specificity regarding how the OSFM will evaluate those technologies and includes: factors that operators must evaluate when considering BAT, specifies that the evaluation of BAT undertaken by an operator must be submitted in a risk analysis to the OSFM, directs operators to specific sections of the proposed regulation that detail required information in a risk analysis, states that the OSFM shall assess the adequacy of the risk analysis and BAT, the determination of BAT rests with the OSFM and the factors that the OSFM shall use in reaching that determination, and specifies a process by which an operator may substantiate a claim that a pipeline currently uses BAT.

**Subsection 2109(a)** is being proposed to require intrastate hazardous liquid pipeline operators to use best available technology for new, replacement, or retrofitted pipelines. This section also lists the minimum requirement that certain types of technologies must be considered by an operator, including leak detection technology, automatic shutoff systems, remote controlled sectionalized

block valves, and emergency flow restriction devices. Other technologies may also be acceptable.

**Necessity:** It is necessary to include this subsection to ensure operators know which pipelines are required to have BAT, and the minimum technologies that must be considered. This subsection also allows operators to consider combinations of technologies or alternatives not listed, which may result in greater spill reduction volumes or work more effectively on the variability between pipeline designs encountered and constructed throughout California. This subsection is necessary since it allows the OSFM and the operators the flexibility needed for all pipelines to obtain regulatory compliance because no one technology may be BAT for every pipeline.

**Subsection 2109(b)** is being proposed to build on what technologies may represent BAT by specifying considerations that an operator must use in evaluating a possible technology.

**Necessity:** Pipeline operators are required to evaluate possible BAT in a risk analysis. The evaluation will be presented in a risk analysis and should consider leak detection technology, automatic shutoff systems, remote controlled sectionalized block valves, emergency flow restriction devices, or any combination of these technologies taking in to consideration whether the process is in use and could be purchased anywhere in the world. This is an intentionally broad evaluation requirement so that operators are not limited in scope when considering BAT because all pipelines are different. Individual pipeline differences necessitate individually tailored solutions and evaluation of possible BAT not contemplated by the legislation or proposed regulations, hence the inclusion of the proposed subsection.

**Subsection 2109(c)** explains that operators are required to submit a risk analysis to the OSFM that evaluates and proposes BAT. Ultimately, the OSFM is charged with assessing the adequacy of the risk analysis.

**Necessity:** This subsection specifies a risk analysis evaluating BAT must be submitted to the OSFM and directs operators to look to specific sections of the proposed regulations for minimum requirements of a risk analysis. The risk analysis is one of the primary tools for evaluating whether an operator has proposed a technology that represents BAT, therefore an operator's proposed BAT is encompassed in a thorough risk analysis. Importantly, this section informs operators of the significant legislative requirement that the OSFM assess the adequacy of an operator's risk analysis. This subsection is necessary because it introduces operators to the risk analysis requirements, provides specific applicable standards that are presented later in the proposed regulations, and will guide operators in successfully evaluating BAT in a risk analysis.

**Subsection 2109(d)** is being proposed to emphasize that the selection of best available technology shall be based on a risk analysis conducted by the operator and assessed by the OSFM. Similar to the previous subsection, the legislature identified the OSFM as making the final determination of what is BAT.

**Necessity:** This subsection clearly states that the OSFM makes the determination of what BAT is based on effectiveness and engineering feasibility as specified in criteria found in Section 2110 (Best Available Technology Determination). Including this subsection ties together the need for an operator to consider and evaluate BAT, then submit those considerations in a risk analysis to the OSFM. This section is necessary for the OSFM and operators to understand what BAT must be considered and where to find the criteria the OSFM will use when evaluating BAT as specified in the authorizing legislation.

**Section 2110 – Best Available Technology Determination** explains that the OSFM shall determine what BAT is and criteria weighed in making that determination.

Technology that fails to meet the BAT standards will be communicated to the operator along with an explanation and findings supporting the OSFM determination.

**Necessity:** One of the primary goals of the legislation is to require BAT on certain pipelines. To achieve this goal, the OSFM has been charged with determining what is BAT by considering effectiveness and feasibility of technology in use or proposed for use on a pipeline. This section provides operators with the criteria the OSFM will use in evaluating technologies for meeting BAT performance standards. Operators should clearly iterate how technologies will satisfy the eight (8) criteria and provide written justification. Each of the criteria were carefully selected to solicit information from an operator relevant to evaluating a range of technology applications without knowing the specific technology to be evaluated. It is necessary to include this section for the OSFM and operators to properly evaluate technology for BAT performance standards based on known criteria. Where proposed technology fails to meet BAT criteria standards, the OSFM will inform the operator and provide written findings explaining the decision. The determination criteria and written findings from the OSFM will ensure the goals of AB 864 are achieved through any necessary risk analysis and proposed BAT revisions.

**Section 2111 – Risk Analysis** details specific requirements for information to include in the risk analysis that operators are required to submit to the OSFM. This section also provides details on associated documentation that should be submitted with the risk. Where possible, information that an operator has already been developed that would satisfy portions of this section can be submitted in place of developing original data. However, if the information is insufficient to meet the requirements of the proposed regulations, additional information will be requested by the OSFM.

**Necessity:** The submission of a risk analysis is required by the authorizing legislation and is one of the primary tools that the OSFM will use to assess and evaluate pipeline compliance with AB 864 and the proposed regulations. Risk analysis are significant bodies of work requiring detail and specificity in data inputs and generating reliable

outputs. This section is necessary for both the OSFM and the regulated community to develop a risk analysis and know what data inputs, factors, and considerations will be scrutinized in determining whether a risk analysis adequately evaluates all the relevant components needed to evidence the application of proposed BAT to a pipeline.

**Subsection 2111(a):** is being proposed to include the requirement that operators submit a risk analysis to the OSFM that considers, at a minimum, the BAT listed in Section 2109, titled “Use of Best Available Technology,” of the proposed regulation.

**Necessity:** The authorizing legislation requires operators submit a risk analysis to the OSFM. The BAT must be evaluated by the operator in the risk analysis with the findings presented to the OSFM in the context of the overall information and data considered on the pipeline. If BAT were not considered in the risk analysis it would be nearly impossible for the OSFM to properly assess the adequacy of proposed technologies and achieve the legislations goal to reduce the amount of oil released. This subsection is necessary because it further clarifies that the consideration of BAT is part of a risk analysis and should be included in the materials submitted to the OSFM and not submitted separately.

**Subsection 2111(b)** is being proposed to include the requirement for operators to submit an initial Implementation Plan that describes and outlines the time frame to implement the BAT proposed in the risk analysis.

**Necessity:** The authorizing legislation calls for operators to submit a risk analysis and a plan to retrofit pipelines with BAT. The plan is separate from the risk analysis, but is a fundamental component of implementation because of the compliance timeframes found within the proposed regulation and legislation. This subsection is included because the OSFM observes construction projects for compliance with State and Federal pipeline safety laws. Understanding proposed timelines for compliance as developed by pipeline operators will allow the OSFM to schedule the necessary field inspections and associated review of construction plans. Given the large number of possible pipeline construction projects associated with the proposed regulations, the OSFM and operators will need to carefully plan and coordinate staff to inspect and observe construction. The submission of an implementation plan is necessary to fulfill the statutory requirement for an implementation plan and will facilitate OSFM coordination and planning efforts.

**Subsection 2111(c)(1)(A)** directs operators to provide basic introductory material in the risk analysis, such as a mailing address and PSFM pipeline identification numbers.

**Necessity:** The OSFM anticipates reviewing several hundred risk analyses. The information requested here is necessary for tracking and communicating with the pipeline operators in a timely manner.

**Subsections 2111(c)(1)(B)** proposes operators submit a certification statement attesting that the information contained within the plan was reviewed by executive management with the authority to implement the risk analysis and to verify that the information contained therein is true and correct and is effective and feasible.

**Necessity:** The certification statement is typically included in risk analyses provided by professional engineers and is similar to requirements found in existing State and Federal laws for oil spill response plans. Though the proposed regulations are seeking the implementation of BAT based on a risk analysis, it is important to consider the effectiveness and engineering feasibility of proposed technology. The OSFM is directed to determine what constitutes BAT and must consider effectiveness and engineering feasibility when making this determination based on criteria identified in Section 2110 (Best Available Technology Determination). OSFM's consideration begins with an operator assessing potential BAT, conducting research, and presenting that information to the OSFM in a risk analysis. A technology that is presented in a risk analysis that is neither effective nor feasible in engineering terms is irrelevant to achieving the goals of the legislation. This subsection seeks to impart the sense of importance attached to an operator's analysis being their most forthright attempt to identify BAT with the legislative goal of providing the greatest degree of protection by limiting the quantity of a release in the event of a spill. This subsection is necessary for the OSFM to verify risk analyses submitted are committed to achieving the goals of AB 864 and the proposed regulations.

**Subsection 2111(c)(1)(C)** proposes operators submit contact information for people within the operator's company or contracting company responsible for overseeing and conducting the risk analysis.

**Necessity:** The OSFM anticipates reviewing several hundred risk analyses. The information requested here is necessary for timely communication between the OSFM and pipeline operators when a question about a risk analysis arises.

**Subsection 2111(c)(1)(D)** proposes operators provide contact information for an agent for service of process designated to receive legal documents on behalf of the operator.

**Necessity:** The OSFM anticipates reviewing several hundred risk analyses and making determinations as to the adequacy of those risk analyses in meeting initial and ongoing regulatory compliance. The proposed regulations include continuing obligations on both the OSFM and pipeline operators. For example, operators are required to periodically review their risk analyses (Section 2117 Risk Analysis Updates and Review), inform the OSFM of a pipeline's sale or ownership transfer (Section 2117 Risk Analysis Updates and Review), maintain testing and training documentation (Sections 2115, 2116, and 2118), and may need to be contacted regarding confidential information found in risk analysis or



implementation plan materials submitted to the OSFM (Section 2119 Confidential Treatment of Information). Likewise, the OSFM must send correspondence to pipeline operators regarding adequacy determinations for risk analyses, revisions to acceptable BAT, or may need to provide regulatory updates and changes to appropriate operator personnel as provided in this proposed section. In some cases, the above listed communications may be sent to an agent for service of process. Importantly, if an operator fails to comply with the requirements of AB 864 and the proposed regulations the OSFM may commence an enforcement actions pursuant to Government Code Sections 51018.6 and 51018.8. These enforcement actions could result in the potential assessment of administrative penalties and the issuance of compliance orders directing an operator to comply and would likely be sent to an agent for service of process. The OSFM does not anticipate an issue requiring an agent for service of process but finds this subsection necessary to meet the goals of AB 864, current statutory and regulatory requirements, and during and following the implementation of the proposed regulations to communicate important information and possible enforcement actions.

**Subsection 2111(c)(2)(A)** is proposed to require pipeline operators to describe the design and operating conditions on a pipeline specific basis with particular attention dedicated to EESAs.

**Necessity:** For the OSFM to understand and evaluate the application of BAT on a pipeline, comprehensive background information must be gathered on the pipeline and the surrounding environment. This subsection establishes the groundwork needed for evaluating existing pipeline profile, operating conditions, and identifying potential areas where applications of BAT will have the most significant impact. Requiring the risk analysis to include diagrams, maps, climatic conditions, and physical geographic features, among others, will ensure appropriate information is available to the OSFM to evaluate the effectiveness and feasibility of proposed BAT and the risk analysis. Additionally, including this information in the risk analysis ensures that it is a standalone document and does not require the OSFM to search for data, gather outside information, or locate documents that should be contained in a comprehensive risk analysis when submitted to the OSFM. This subsection provides information necessary for the OSFM to assess the adequacy of an operator's risk analysis as required by the legislation.

**Subsection 2111(c)(2)(A)1.** This subsection directs operators to describe and consider information that the OSFM needs to understand a pipeline's design and operations, background, and components to effectively create a baseline used in an operator's risk analysis.

**Necessity:** The OSFM may not currently possess diagrams of each pipeline, in-station piping, valve locations, pipeline age, or pipe design. Understanding the

pipeline design is the cornerstone of developing a risk analysis. For example, the location of valves and pumps impact how much oil is released in a spill. If valves are spaced farther apart or only at higher elevations the volume of release could be high due to the amount of drain down occurring at low points on a pipeline. The information requested in this subsection can be used to reduce release volume by installing valves in new locations or in closer proximity. Likewise, knowing the type of product transported in the pipeline and the characteristics of those products if they enter the environment may also determine BAT applications because not all hazardous liquids react the same when exposed to the environment. This subsection is necessary to inform the OSFM and operators conducting risk analyses of the baseline conditions present in a pipeline design and operations. Once the baseline information is gathered, the OSFM can make an educated review of an operator's proposed BAT. This subsection is necessary, because without baseline information on a pipeline, the OSFM would be blindly reviewing BAT proposals without the necessary context needed to evaluate whether a proposed technology will attain the legislative goal of reduced spill volume and protection of EESAs.

**Subsection 2111(c)(2)(A)2.** This subsection requires operators to research, review, and consider manmade structures that may be found surrounding pipelines and identify on vicinity maps.

**Necessity:** Vehicular and rail crossings, residential, commercial, and other populated areas can act as barriers or may contain features that act as potential conduits to EESAs during a pipeline release. For example, an elevated roadway may act as a barrier during a release, thereby preventing the spread of hazardous liquid beyond a certain distance from a pipeline. Alternatively, many elevated roadways include drainage systems, such as culverts, sewer drains, and storm drains that can act as a conduit during a release and facilitate a more direct route to EESAs. Additional benefit from identifying these features include the fact that bridges (vehicular and rail) in the coastal zone often span creeks, rivers, and marshes that are classified as EESAs. With a solid understanding of potential conduits to EESAs, the OSFM and operators will have additional data points leading to a more effective risk analysis and use of BAT. Identifying these features is necessary to facilitate a more thorough risk analysis of factors the OSFM finds relevant based on historic release locations and transport mechanisms.

**Subsection 2111(c)(2)(A)3.** This subsection requires operators to consider climatic and hydrographic conditions surrounding pipelines.

**Necessity:** Seasonal changes in climate and hydrographic conditions affect California's diverse landscape differently and could impact a pipeline release characteristics and risk analysis. Pipelines traversing various parts of the State are subject to different natural forces and should be accounted for in a risk

analysis. Climatic conditions experienced in coastal Northern California are different from conditions experienced in Southern California. Likewise, hydrographic considerations for pipelines located in an urban environment in the Los Angeles area will vary when compared to conditions present in rural parts of Santa Barbara. Therefore, climatic and hydrographic conditions encountered by each pipeline are worthy of consideration in a risk analysis. Hydrographic features often include rivers, marshes, lakes, and ponds which are often classified as EESAs. Understanding seasonal changes in climate and hydrography are key to planning and conducting a thorough risk analysis that could affect proposed valve locations or other forms of BAT that could provide additional protection to EESAs that otherwise would not be considered. For example, areas more prone to hydrologic events in wetter months as opposed to drier months may still be good candidates for valve installations and is a consideration the OSFM will evaluate. This subsection is necessary for the OSFM to properly evaluate proposed risk analyses to ensure operators have fully considered transport mechanisms that could exacerbate or lead to a pipeline release, such as flooding or scouring at river crossings, through hydrographic and climatic conditions.

**Subsection 2111(c)(2)(A)4.** This subsection describes the requirement that operators consider geographic features, drainage systems, road crossings, and other natural or manmade barriers or conduits that may affect a pipeline release's trajectory or could impact an EESA.

**Necessity:** The variable terrain and features that a pipeline encounters in one location is highly unlikely to be found on other pipelines across California's diverse landscape. The approach described in this subsection directs operators to evaluate local features and peculiarities that will impact direction, flow, and dispersion of product in a release on a pipeline specific basis. Understanding how these features impact a pipeline release's trajectory is fundamental to identifying areas of increased risk or increased severity of harm in the event of a release and should be analyzed by operators in risk analyses. For example, the pipeline release that gave rise to AB 864 and the proposed regulations traveled through a culvert, under a freeway, and ultimately entered the Pacific Ocean. Those physical geographic features and roadway crossings acted as pathways for the release to reach EESAs. This subsection is necessary for the OSFM to achieve the goals of AB 864 and the protection of environmentally and ecologically sensitive areas.

**Subsection 2111(c)(3)** is being proposed to require a summary of the risk analysis and a description of methods used in the risk analysis specific to each pipeline. Operators are required to maintain documentation sufficient to justify methods and approaches used in conducting a risk analysis.

**Necessity:** The findings, conclusions, and methods used in conducting a risk analysis are key to OSFM review and assessment. Requiring a summary of this information in the risk analysis will facilitate a quicker understanding of the overall conclusions reached by an operator and proposed BAT applications contained within the comprehensive risk analysis. Included in all risk analyses summaries will be a description of methods used by pipeline operators to reach the conclusions in the risk analyses. Pipeline operators will use different software, personnel, tools, advice, and studies to inform their approach to each risk analysis. Because the OSFM anticipates reviewing several hundred risk analyses, the variability in approach by each operator and each pipeline necessitates an initial summary to be included in the risk analyses. The summary will provide a baseline for the OSFM to more effectively assess and verify information, data and conclusions reached by an operator. The risk analysis results are more effectively verified by understanding the approach taken by an individual operator at the outset of a risk analysis, instead of the OSFM inferring an approach based on reviewing a risk analysis. Additionally, operators shall maintain records evidencing methods and approaches used in the risk analysis for verification should the OSFM require it. This subsection further clarifies the need for operators to conduct individual risk analyses on each pipeline and to provide a summary of those methods and results of the risk analysis. It is necessary to include this subsection so the OSFM is apprised of methods used by an operator to accurately evaluate and assess a risk analysis as required by AB 864.

**Subsection 2111(c)(4)** is being proposed to require pipeline operators to conduct a spill analysis to determine the consequences of a release. The spill analysis will assume adverse environmental conditions so a worst-case dispersion scenario is considered. The spill analysis shall consider trajectory and must calculate discharge volume as specified by onshore and offshore formulas. Consideration of specific EESA factors are identified and approaches to discharges that could affect a waterway are also requirements for inclusion in a spill analysis. The spill analysis is intended to be used as one of the baselines found in the risk analysis.

**Necessity:** This subsection summarizes requirements that are further detailed in following subsections, but in general states that operators are required to conduct a spill analysis as part of the risk analysis. Which will be used as a baseline for comparison of existing pipeline spill calculations to potential spill volume reductions following the application of BAT. Importantly, spill analyses will serve to identify worst case discharges to achieve the legislative goal of protecting state waters and wildlife and EESAs. The OSFM did not gather spill analysis information prior to the passage of the enabling legislation, which means it must obtain this information from operators to fulfill the statutory obligation to assess an operator's risk analysis. This information may already exist in other

documents provided by operators to State and Federal agencies. Operators should already be familiar with the material and processes needed to conduct a spill analysis therefore adapting existing analyses or conducting new spill analyses should not be too burdensome. In some cases, where a spill trajectory analysis has already been completed operators can provide the OSFM with the previously submitted materials to reduce workload and burden of the new regulatory requirements on industry. However, if the previously completed materials do not meet the needs of the OSFM spill trajectory or risk analysis requirements, an operator will be required to submit supplemental information or an AB 864 specific spill analysis to the OSFM. This subsection is necessary because the OSFM did not previously gather this information but must review spill consequences to adequately assess proposed BAT and anticipated spill reduction volumes as required in AB 864.

**Subsection 2111(c)(4)(A)** A trajectory or series of trajectories is required for determining direction of spill flow in the event of a release and should consider worst case spill volume and proximity to EESAs based on regional geographic and hydrographic features.

**Necessity:** An effective spill analysis should consider potential pathways for dispersal during and following a release from a pipeline. The OSFM and operators must know this information to properly locate where a spill harm will likely be greater due to features of terrain or drainage. Additionally, this information will inform the extent or potential outer limits of a spill ensuring that EESAs located near pipelines are protected as effectively as areas where pipelines traverse EESAs. The OSFM and operators must know the outer extent of a worst-case scenario spill trajectory to properly evaluate and assess potential BAT based on existing geographic and hydrographic conditions surrounding pipeline locations and their proximity to EESAs. This subsection is necessary because the OSFM does not currently possess spill trajectory data needed to ensure the AB 864 goal of protecting EESAs is accomplished.

**Subsection 2111(c)(4)(B)** is being proposed to specify how operators calculate worst case discharge when conducting the required spill analysis. This calculation accounts for pipelines located on-shore and off-shore.

**Necessity:** Calculating discharge volume is a fundamental component for any spill analysis and is dependent on pipeline operations, profile, and the surrounding environment, to name a few. For example, an off-shore pipeline rupture will experience different dispersion and release characteristics from a pipeline rupture that occurs on-shore. Therefore, it is imperative that pipeline operators consider these factors and follow different calculations based on pipeline location. The OSFM does not currently gather or possess data for worst case discharge volumes on pipelines in California, which it must have to properly evaluate spill analyses and possible release volumes from a pipeline. This

subsection is necessary for the OSFM and operators to evaluate potential to impact an EESA, one of the primary goals of AB 864.

**Subsection 2111(c)(4)(B)1.** This subsection provides two options for calculating worst case discharge volumes from on-shore pipelines.

**Necessity:** The two options for calculating worst case discharge volumes ensures that the most accurate data is provided to the OSFM. Where an actual release has occurred, operators can provide that release volume. Alternatively, operators can provide the OSFM with a projected release volume based on a mathematical calculation. Both approaches should be familiar to pipeline operators because they are currently in use by other State and Federal agencies for worst case spill volume estimation. This subsection is necessary because the OSFM does not currently possess this information and it is an essential component for evaluation of spill analysis and spill trajectory.

**Subsection 2111(c)(4)(B)2.** This subsection provides the calculation for pipeline operators to determine the worst case discharge volume for an off-shore pipeline.

**Necessity:** Because off-shore pipelines are subject to different environmental conditions than on-shore pipelines a different calculation is required. This approach should be familiar to pipeline operators because it is currently in use by other State and Federal agencies for worst case spill volume estimation. This subsection is necessary because the OSFM does not currently possess this information and it is an essential component for evaluation of spill analysis and spill trajectory.

**Subsection 2111(c)(4)(C)** this subsection is proposed to specify elements for inclusion in spill analyses.

**Necessity:** The elements listed in this subsection will assist pipeline operators in developing, conducting, and evaluating a spill analysis. When the elements listed are considered by a pipeline operator the result will be a more carefully tailored spill analysis that is pipeline specific and focused on local geographic and environmental conditions. These elements will further assist operators and the OSFM in analyzing the overall risk analysis for a pipeline. Currently, pipeline operators use the elements found in this subsection for compliance with other State and Federal regulatory requirements so they should be familiar with the approach. This information is not collected by the OSFM under existing regulatory requirements but is being proposed here because the information is necessary for the OSFM to fully evaluate spill and risk analyses.

**Subsection 2111(c)(4)(D)** this subsection is proposed to specify additional elements for inclusion in spill analyses where a release could affect a waterway.

**Necessity:** This subsection is similar to the immediately preceding subsection but with added requirements where a release could affect a waterway. The

additional requirements highlight the importance of fully considering transport mechanisms following a release. Historically waterways have served as conduits for channeling and facilitating spill dispersal over distances not experienced by spills confined to terrestrial landscapes. By including these additional elements operators will more fully contemplate the possible impacts and distances a release could travel as part of the spill analyses. The additional considerations included here are not collected by the OSFM but are necessary to properly evaluate each spill analysis and risk analysis.

**Subsection 2111(c)(4)(E)** this subsection informs operators of the requirement to submit information sufficient to substantiate the spill analysis and calculations contained therein.

**Necessity:** The OSFM must evaluate assumptions, calculations, and data used by pipeline operators when they conducted the spill analysis. This information can then also be tested by the OSFM to determine if the conclusions reached by a spill analysis are supported by the inputs utilized by the operators. This section is necessary for the OSFM to fully evaluate a spill analysis through checking an operators body of work used to develop the conclusions found in the spill analysis.

**Subsection 2111(c)(5)** is being proposed to require the hazardous liquid pipeline operator to describe how the best available technology proposed in the risk analysis will achieve the goal of providing the greatest degree of protection by limiting the quantity of a release in the event of a spill.

**Necessity:** The goal of reducing spill volume can be achieved through myriad technologies that represent BAT. The purpose of this subsection is to ensure that proposed BAT in a risk analysis is fully discussed and selected by an operator based on consideration and contemplation of the goal of spill reduction to the greatest degree possible. The OSFM is tasked with evaluating and determining what constitutes BAT. This evaluation is better understood in the context of an operator's mindset and own assessment. This subsection is necessary for the OSFM to fully understand an operators risk analysis and consider whether proposed BAT is actually the greatest degree of protection when compared to all other options available to an operator.

**Subsection 2111(c)(6)** is being proposed to inform operators that they will need to provide training and testing on best available technology identified in the risk analysis.

**Necessity:** This subsection informs operators that training (Section 2116 – Training) and testing (Section 2115 – Testing) of proposed BAT is required in all risk analysis. The effectiveness of a technology is often reliant on properly trained personnel in the use and operations of that technology. Likewise, testing to verify the objective of a proposed technology is achieved is similarly important.

This subsection informs operators that proposed BAT in the risk analysis will be required to comply with training and testing requirements for evaluation by the OSFM. The proposed requirements are similar to existing State and Federal regulatory requirements. Including these requirements with review by the OSFM will ensure that the goals of the BAT are being achieved as intended. This subsection is necessary because training and testing is a fundamental component of any BAT and must be incorporated in to operator procedures for evaluation by the OSFM.

**Subsection 2111(c)(7)** is being proposed to inform operators that a periodic review and update of the risk analysis will be required.

**Necessity:** This subsection directs operators where to look in the proposed regulations for requirements related to future review of risk analysis. This provision informs operators that though a onetime retrofit with BAT may be all that is required for compliance with the proposed regulations, in some cases additional BAT may be needed based on future review as specified in Section 2117 (Risk Analysis Updates and Review) of the proposed regulations. It is necessary to periodically review and update the risk analysis to ensure that BAT is working as intended. Additionally, one of the primary goals of the legislation is the protection of EESAs. EESAs are not static fixed points on maps on a set date. Species migrate, new species are identified as protected or endangered, and new EESAs are discovered at locations not currently identified. To achieve the goal of protecting EESAs, it is necessary to periodically review risk analysis to ensure the protection of these vital natural resources as directed by AB 864.

**Section 2112 – State Fire Marshal Risk Analysis Assessment** is being proposed to specify the process used by the OSFM in reviewing and assessing the adequacy of submitted risk analyses. This section also includes subsections for timeframes for OSFM review, factors used by the OSFM in determining the adequacy or inadequacy of risk analyses, inspections, communications procedures from the OSFM to operators on completion of risk analysis review, timeframes for operators in responding to inadequacy determinations, and construction notification processes.

**Necessity:** The OSFM is charged with developing a process for assessing the adequacy of an operator's risk analysis in the authorizing legislation. This sections goal is to craft a process to evaluate the approximately 457 anticipated risk analyses that the OSFM will need to review. It is necessary to include this section so the OSFM and the regulated community know the proper process for achieving regulatory compliance. This especially true given the logistical and legal implications, including: the large number of risk analyses, the statutory and regulatory timeframes for achieving compliance, and the potential to incur civil administrative penalties or the issuance of compliance orders if an operator fails to meet the statutory and regulatory requirements. An established risk analysis assessment process is fundamental to the administering of the authorizing legislation and the proposed regulations.



**Subsection 2112(a)(1)** is being proposed to include a timeframe for OSFM to review the risk analysis and where necessary extend the amount of time needed for review based on good cause.

**Necessity:** Pipeline operators are not allowed to proceed with construction and retrofit of BAT on pipelines until the OSFM has reviewed and accepted the pipeline risk analysis. The OSFM proposed a 90-day review period of risk analyses so that operators could reasonably plan for construction, order required equipment, and dedicate the needed resources to implementing the approach in their risk analysis while still meeting the compliance timelines required in statute and the proposed regulations. The OSFM considered review periods and work load of staff dedicated to risk analysis review and determined that in some cases an extension to the 90-day period may be required based on good cause, thereby allowing some flexibility to the OSFM. A showing for good cause was included because automatically approving a risk analysis within a set time frame would be counter to the legislative goals of the OSFM reviewing risk analysis and determining what constituted BAT. Therefore, the timelines proposed and good cause provision in this subsection are necessary for both the OSFM and the regulated community to develop work load planning and achieving compliance on schedule, while affording some flexibility.

**Subsection 2112(a)(2) and (3)** are being proposed because the OSFM is statutorily required to assess each risk analysis for adequacy and compliance with the authorizing legislation and proposed regulations. This subsection informs the regulated community how they will be notified of the OSFM's determination of adequacy or inadequacy and required timeframe for response to the OSFM of any identified deficiencies. This subsection also includes a 30-day response timeline for operators to resubmit deficient risk analyses.

**Necessity:** Effectively reviewing and administering adequacy determinations for a large number of risk analyses requires a formalized process to ensure an operator is informed of deficiencies so they can be efficiently addressed, revised, and then reviewed by the OSFM. In the event a risk analysis is deficient; it is imperative that operators and the OSFM have established timelines for response to continue moving towards regulatory compliance dates. Not all risk analysis submitted to the OSFM will meet the requirements found in the authorizing legislation and proposed regulations. In the event a risk analysis is deemed inadequate an operator must be informed of the determination and provided with an explanation of deficiencies so they may be corrected. If possible the OSFM may also suggest modification or alternatives that the operator should consider in revising a risk analysis. One of the goals of the authorizing legislation is to install BAT that provides the greatest degree of protection by limiting the quantity of release in the event of a spill. If a risk analysis fails to achieve that goal, as determined by the OSFM's assessment of the risk analysis, an operator must be

given an opportunity to remedy any deficiencies. This subsection is necessary because it ensures that all risk analyses submitted to the OSFM will ultimately meet the legislative goals of AB 864 even though multiple submissions and reviews may be needed. This subsection is necessary to achieve that goal, and does so through a formal letter from the OSFM and specified response timelines from operators with deficient risk analyses ensuring timely and efficient compliance with the proposed regulations.

**Subsections 2112(b)(1) and (2)** are being proposed to state the OSFM's statutory obligation to assess the adequacy of an operator's risk analyses of BAT and elaborate on what considerations the OSFM will evaluate when determining whether a risk analysis contains BAT. Additionally, these subsections direct operators to the pertinent sections of the proposed regulations that will guide their risk analysis development and minimum requirements for BAT. These subsections describe what factors the OSFM will consider when making a determination of adequacy for an operator's risk analysis.

**Necessity:** The OSFM is charged with assessing the adequacy of risk analyses and determining what constitutes BAT. These subsections directly incorporate the stated goals and objectives of AB 864, that the OSFM assess and determine adequacy of risk analyses, while directing operators to criteria and requirements that will be used in assessing risk analyses for achieving the legislative goals. It is necessary to include these subsections because it eliminates confusion and further clarifies the requirements imposed on operator risk analyses while illuminating criteria and factors relevant to the OSFM's determination of adequacy.

**Subsection 2112(b)(3)** is being proposed to explain the minimum factors that the OSFM will consider when conducting an adequacy assessment for submitted risk analyses.

**Necessity:** One of the goals of AB 864 is the installation of BAT on pipelines. The OSFM must make determinations and assess the adequacy of various compliance requirements including BAT evaluation found in an operator's risk analysis to achieve this goal. This subsection informs operators what factors and considerations the OSFM will use in assessing a risk analysis. However, the assessment is not solely limited to the factors and considerations operators are required to include in the risk analysis in this and foregoing sections. To truly assess a risk analysis for adequacy, the OSFM must also conduct an in-depth evaluation and review of the assumptions, conclusion, methodology, justification, existing technologies, and other pipeline specific characteristics used in developing the risk analysis. The considerations listed in this subsection will ensure the risk analyses submitted have thoroughly evaluated BAT through sound methodologies verified by the OSFM adequacy assessment. The requirements in this subsection are necessary to inform operators that the

OSFMs adequacy assessment is not limited to representations made in the risk analysis and materials submitted. Furthermore, the information represented in the risk analysis should be substantiated by the methods and approaches used to support the conclusions asserted.

**Subsection 2112(c)** is being proposed to allow the OSFM to conduct on-site inspections to determine adequacy of the risk analysis.

**Necessity:** Hazardous liquid pipelines operate in an extremely complex realm of conditions and factors that is not always easily described or evaluated on paper. Field inspections are an important tool the OSFM must have available to confirm methods or conclusions reached in a risk analysis. Factors such as control room design, environment surrounding a pipeline, or operational procedures are only a few components that could inform an operator's conclusions and are often best understood through field inspections. This subsection is necessary because the OSFM may need to evaluate on-site conditions of a pipeline to assist in their review and evaluation of risk analyses to confirm it is adequate.

**Subsection 2112(d)** is being proposed to inform operators of how they will be informed of a determination that a risk analysis is adequate and deemed accepted by the OSFM.

**Necessity:** This subsection fulfills an administrative function of informing operators that a risk analysis is deemed adequate and accepted by the OSFM, or that the risk analysis is acceptable to the OSFM but conditioned on other requirements, through the issuance of a Letter of Acceptance. It is necessary to include this subsection so both operators and the OSFM can identify a conclusion to the administrative review and evaluation of risk analyses and move forward with the physical implementation of the proposed BAT retrofits.

**Subsection 2112(e)** is being proposed to inform the regulated community that failure to meet the requirements of the authorizing legislation and the proposed regulations may result in OSFM pursuing enforcement action afforded under California Government Code sections 51018.6 and 51018.8. This subsection also informs operators that though risk analyses may be resubmitted multiple times for deficiencies, operators are still required to complete pipeline retrofit within specified compliance timeframes. Furthermore, even if a risk analysis is deemed adequate and accepted by the OSFM the proposed retrofits must be completed by the date specified, January 1, 2022.

**Necessity:** One of the goals of AB 864 is the retrofit of existing pipelines with BAT for the protection of state waters and wildlife. Operators must understand that the submission of deficient risk analyses on their own will not alleviate or prolong an operator's responsibility to achieve regulatory compliance by specified dates. It is necessary to include this subsection to ensure submitted risk analyses accomplish the goals of AB 864 and the proposed regulations while

limiting the number of potential reviews needed by informing operators that additional compliance time will not be granted for failure to submit acceptable risk analyses. This subsection is necessary so the OSFM can issue orders, assesses civil penalties, and direct operators to achieve compliance with the goal of reducing the potential harm from a pipeline release.

**Subsection 2112(f)** is being proposed to inform operators that a written Letter of Acceptance is required prior to commencing construction and that operators are required to inform the OSFM of planned new construction or retrofit prior to undertaking construction consistent with Section 2114 of the proposed regulations.

**Necessity:** One of the legislative requirements found in AB 864 is that pipeline operators notify the OSFM of new construction or retrofit of pipelines subject to the proposed regulations. The purpose behind this requirement is that it allows the OSFM the opportunity to schedule, visit, and participate in on-site inspection activities while pipeline operators are undertaking construction. The OSFM routinely attends pipeline construction activities as part of its normal duties. This subsection is necessary for the OSFM to observe regulatory construction requirements on hazardous liquid pipelines and to confirm that proposed retrofits are being executed as proposed in operator risk analyses.

**Section 2113 – Implementation Plan** is being proposed to require operators submit an initial implementation plan with their risk analysis. The implementation plan shall outline the time to complete the required retrofit of pipelines with the BAT.

**Necessity:** One of the requirements of the authorizing legislation is that operators submit a plan to retrofit existing pipelines. To achieve this requirement, the proposed regulations provide detailed instruction on what information must be contained in the plan for the OSFM to assess the implementation and compliance of the risk analysis with existing and proposed regulatory requirements. It is necessary for the OSFM to have the initial implementation plan when reviewing a hazardous liquid pipeline operator's risk analysis to confirm and assess assumptions while evaluating whether the proposed BAT will meet the goals of AB 864 and within specified timeframes.

**Subsection 2113(b)** is being proposed to require the operator to submit a detailed implementation plan to supplement the initial implementation plan. The detailed plan must be submitted within 60 days of acceptance of the risk analysis by the OSFM as detailed in Section 2112 (State Fire Marshal Risk Analysis Assessment).

**Necessity:** The OSFM needs a detailed supplemental implementation plan to review any changes or additional detail added from the initial implementation plan required in Section 2113(a). The initial implementation plan is designed to provide a general overview of what an operator believes will meet the BAT requirements of the OSFM. However, the OSFM may reject, or suggest

alternatives to the operators proposed BAT and risk analysis. Requiring an operator to provide a detailed implementation plan prior to OSFM approval and acceptance would seem an unnecessary dedication of resources to an unapproved risk analysis and BAT. Requiring the supplemental detailed implementation plan is necessary for the OSFM to confirm that approved risk analysis and BAT will be retrofit and installed consistent with the deadlines found in the proposed regulations and AB 864.

**Subsections 2113(c) and 2113(c)(1)** are being proposed to inform operators of the required components that must be included in the supplemental implementation plan.

**Necessity:** The supplemental implementation plan shall consist of the following: hazardous liquid pipeline operator information, hazardous liquid pipeline operator's contact information, contractor's contact information, pipeline ID, certification statement, a timetable for implementation and completion, a start-up plan, a testing program, and training for the hazardous liquid pipeline operator's employees. It is necessary to have this information in the plan for the OSFM to easily access contacts, key operator personnel, and contractors that may be implementing the plan should any questions arise during implementation or OSFM review and ensures that the implementation goals of AB 864 are achieved.

**Subsection 2113(c)(2)** provides additional specificity to components that must be included and considered in the operators proposed timetable for implementation. This subsection also informs operators that they are to implement the plan according to the submitted timetable and explains that operators must communicate deviation from the plan to the OSFM with a showing of good cause for delays.

**Necessity:** The OSFM anticipates that the requirements contained in AB 864 and the proposed regulations may, in some cases, lead to a significant number of retrofit and construction projects to existing pipelines being undertaken simultaneously. Because of the large number of pipelines anticipated to need retrofit, operators may experience delays in purchasing equipment, acquiring necessary permits, and securing qualified field personnel to implement the approved BAT installation. This subsection will help operators plan for these potential contingencies, while providing valuable information to the OSFM. This subsection is necessary to gather information from operators so the OSFM can thoroughly assess implementation across individual projects and others throughout the State to ensure timely compliance consistent with legislative goals. It is also necessary that the OSFM is informed of delays for good cause so any implementation issues can be resolved quickly.

**Subsection 2113(c)(3)** proposes operators include a startup plan with the supplemental implementation plan.

**Necessity:** Pipeline operators are required to develop written procedures that provide for safety during maintenance and operations of pipeline systems under Title 49, Part 195.402 of the Code of Federal Regulations (49 CFR 195.402). Many of the pipeline retrofits are expected to incorporate physical construction and shutting off and restarting pipelines similar to conducting maintenance activities. The OSFM determined that operators should have startup plans and procedures in place because of the inherent safety concerns related to pipeline maintenance, shutdown, and startup. Operators are familiar with 49 CFR 195.402 from current operations and can be used for the purposes of the proposed regulations. The result should be safer implementation plans and reduced likelihood of injury or potential spills before, during, and following construction activities. This subsection is necessary because the safe operation and maintenance of pipelines is one of the primary concerns of operators, the OSFM, and AB 864.

**Subsections 2113(c)(4) and (5)** informs and directs operators to proposed sections 2115 and 2116 related to Testing Requirements and Training Requirements, respectively.

**Necessity:** Including these internal references to testing and training sections eliminates confusion and provides clarity. Including this reference to the testing and training requirements provide additional detail that would otherwise be confusing to combine with or include in Section 2113, which is focused on components of and materials to be submitted with the implementation plans. To implement the goals of AB 864, proper training and testing are required to confirm risk analysis and BAT achieve those goals. Testing and training are fundamental components of any pipeline system operating effectively and preventing spills. It is necessary to include these requirements so the OSFM can review personnel training and proposed testing procedures to ensure properly qualified individuals are developing and executing pipeline retrofits consistent with safety standards and best practices during and after the implementation phase of the proposed regulations.

**Subsections 2113(d) and (e)** propose a requirement that operators justify, by demonstrating good cause, estimated completion dates for plan implementation that extends beyond the 30-months allotted for compliance in the legislation and proposed regulations. For those operators that fail to complete the plan within 30-months and fail to substantiate this failure with a showing of good cause the OSFM may bring an enforcement action pursuant to authority granted in California Government Code sections 51018.6 and 51018.8.

**Necessity:** The authorizing legislation directed the OSFM to adopt regulations by July 1, 2017. The legislation also contained dates for operators to submit

retrofit plans and for the completion of retrofit by July 1, 2018 and January 1, 2020, respectively. Though the directed adoption date and the retrofit plan submission will likely have passed by the time the proposed regulations are adopted, the legislature clearly defined a time frame in which operators are allotted to come in to compliance based on the final adoption date of the proposed regulations. Turning to the dates provided by the legislation, we find that 30-months pass between July 1, 2017 and January 1, 2020. Therefore, it is only appropriate and consistent with the goals of the legislation to provide operators with 30-months to achieve plan implementation following adoption of the proposed regulations. It is necessary to include this subsection because operators would be required to submit implementation plans by July 1, 2018 without knowing the requirements for elements of the implementation plan, risk analysis, processes for OSFM assessment of those deliverables, pertinent regulatory definitions, or what constitutes BAT, among others. Furthermore, it is necessary to include this subsection because it provides clarity on defined implementation and completion deadlines based on dates which have already passed in the authorizing legislation. This subsection also serves the purpose of informing operators that they must achieve plan implementation before 30-months have passed or they may face enforcement action if the delay is not substantiated by a showing of good cause. Including the enforcement provision is necessary to provide the OSFM with the tools to encourage timely compliance based on the legislative goal of full implementation and completion of retrofit within 30-months.

**Section 2114 – Notice of Any New Construction or Retrofit of Pipelines** is being proposed to require hazardous liquid pipeline operators to notify the OSFM at least 60 days before new construction or retrofit of pipelines begins.

**Necessity:** Operator's will be required to complete and submit Form PSD-103 (Notice of Intrastate Hazardous Liquid Pipeline Construction) to the OSFM at least 60 days prior to the commencement of construction. The authorizing legislation requires operators to notify the OSFM of construction and retrofit. Including this requirement in the proposed regulations specifies when and how an operator must communicate the notification requirement to the OSFM. Furthermore, this proposed section will allow the OSFM adequate time to review the project design, construction plan, and procedures. This section is necessary for the OSFM to conduct appropriate inspections that ensure compliance with federal and State regulations, enhance public safety, protect California's vital natural resources, and achieve the goals of AB 864.

**Section 2115 – Testing Requirements and Test Failures** is being proposed to describe the minimum testing requirements for BAT and addresses the corrective actions that may be required in the event BAT fails testing requirements.

**Necessity:** Pipelines that are equipped with or are retrofit with BAT must undergo testing to ensure the installed technologies are functioning as intended and meet the goals of AB 864 and submitted risk analyses. BAT is broadly defined by the authorizing legislation as technology currently in use or available for purchase anywhere in the world. This rather large category of possible BAT necessitates flexible testing requirements because not all technologies can be tested in the same manner. This subsection provides minimum requirements on a range of Leak Detection Systems (LDS) and other technologies that could be considered BAT, including LDS, Computational Pipeline Monitoring (CPM-LDS), Automatic Shutoff Systems, and Emergency Flow Restriction Devices (EFRDs). It is difficult to evaluate how certain technologies will perform on a specific pipeline unless an actual spill occurs. Therefore, testing is necessary so the OSFM and operators can evaluate BAT without the occurrence of an actual spill. Where BAT fails testing requirements operators will need to evaluate and reassess previously submitted risk analyses to address any deficiencies in test performance. An installed technology considered to be BAT is only effective if it delivers on projected results and spill volume reduction. Lessons learned from the testing review and evaluation will help inform the OSFM of broader BAT effectiveness consistent with AB 864 goals and will be incorporated in program improvement. The testing requirements and the resubmission of risk analyses following failures of BAT to perform as expected during testing are necessary to achieve the goals of AB 864. This section is necessary for the OSFM to properly evaluate risk analyses and BAT for achieving AB 864 goals and address areas that need improvement or reconsideration following regulatory implementation.

**Subsection 2115(a):** is being proposed to outline the minimum testing requirements, standards, and frequency of testing intervals for leak detection capability and leak limitation effectiveness of a pipeline LDS.

**Necessity:** This subsection requires testing frequency for LDS at 3 year intervals and consistent with the standards contained in Sections 8 and 9 of API 1175 (2015). The specified testing standards found in API 1175 will ensure installed BAT is performing as projected in risk analyses. The additional detail provided in API 1175 emphasize the importance of following procedures and processes outlined in other API recommended practices, including API 1130 and API 1162. These processes and procedures are designed to test LDS consistent with the operations and safety of a pipeline in mind, while also considering the unique aspects of individual pipelines and BAT. Simply installing new technology on a pipeline may not be sufficient to meet the goals of utilizing BAT to effectuate spill volume reduction. Likewise, setting anticipated spill reduction volumes at artificially higher or lower levels in a risk analysis to achieve the goals of AB 864 is unacceptable. Absent this subsection, the OSFM would not be able to confirm anticipated spill reduction volumes or effectiveness of BAT in a meaningful manner; two significant goals of AB 864. This subsection provides operators with information needed to properly test pipeline BAT and is necessary for the OSFM



to evaluate installed BAT on a continuing basis for consistency with the requirements and goals of AB 864.

**Subsection 2115(b):** is being proposed to outline the minimum testing requirements, standards, and frequency of testing intervals for leak detection capability and leak limitation effectiveness of a pipeline equipped with a Computational Pipeline Monitoring LDS (CPM-LDS).

**Necessity:** Similar to the previous subsection, this subsection addresses the testing frequency of CPM-LDS of every 3 years and requires operators to test consistent with the standards contained in Sections 6.2 through 6.2.6 of API 1130 (2007) and Title 49 part 195.444 of the Code of Federal Regulations (49 CFR 195.444). The specified standards found in API 1130 and 49 CFR 195.444 are necessary to ensure installed BAT is performing as projected in risk analyses. The additional detail provided in these documents emphasize the importance of following procedures and processes designed to test CPM-LDS consistent with the operations and safety of a pipeline in mind, while also considering the unique aspects of individual pipelines and BAT. Simply installing new technology on a pipeline may not be sufficient to meet the goals of utilizing BAT to effectuate spill volume reduction. This subsection provides operators with information needed to properly test pipeline BAT and is necessary for the OSFM to evaluate installed BAT on a continuing basis for consistency with the requirements of AB 864. Absent this subsection, the OSFM would not be able to confirm anticipated spill reduction volumes or effectiveness of BAT in a meaningful manner; two significant goals of AB 864.

**Subsection 2115(c):** is being proposed to outline the frequency of Automatic Shutoff System (ASOS) testing.

**Necessity:** Hazardous liquid pipeline operators shall annually test and calibrate the components of an LDS system regarding an ASOS. Operators must develop a testing procedure that identifies the ASOS used and a process to test the ability of that system to function as designed with the ultimate goal of lowering the volume of material released in the event of a spill. Testing must be performed at least once a year, not to exceed 15 months. Hazardous liquid pipeline operators must develop a procedure for testing, with the expected results of the testing being documented. Calibrating may include general maintenance, lubing of valves, communication verification, gauge calibration, measuring and verifying response time and command logic sequencing. Testing may also involve the testing of the interaction of the CPM systems and LDS systems tied to the operations of the ASOS. Specific testing standards are not adopted under this subsection, as is seen in subsections 2115(a) and (b), because of the wide variety of ASOS available. However, in the absence of specific testing standards operators should consider ASOS manufacturing recommendations found in subsection 2115(e) of this section. This subsection is necessary because

operators have a vast array of options available in selecting an ASOS. Given the complexity and variability of most ASOS systems, specific testing standards would be impracticable to proposed or implement at this time. Even with the impracticability of specifying testing standards, it is necessary to test ASOS on a regular time frame so the OSFM can confirm that installed ASOS is performing as anticipated. By testing ASOS on a regular time frame will ensure meeting the spill volume reduction goals of AB 864.

**Subsection 2115(d)** is being proposed to inform pipeline operators that install or have installed Emergency Flow Restricting Devices (EFRDs) of the required maintenance and testing schedule of EFRDs.

**Necessity:** Hazardous liquid pipeline operators are being provided specific timelines and testing requirements following installation of EFRDs as BAT on existing pipelines. Retrofit of pipelines with EFRDs shall be installed and maintained in accordance with the following Parts of Title 49 of the Code of Federal Regulations (49 CFR): 49 CFR 195.116, 49 CFR 195.258, and 49 CFR 195.420(a) and 195.420(c). The referenced Parts of 49 CFR 195 provide specific requirements regarding design, technical specifications, locations, and access of EFRDs. This subsection also provides the requirements for testing these devices on an annual basis not to exceed 15 months. One of the goals of AB 864 is the reduction of spill volume. The inclusion of this subsection is necessary to ensure that EFRDs installed will meet federally recognized design standards and tested with the regularity needed to perform as anticipated in risk analyses thereby confirming spill reduction volume.

**Subsection 2115(e)** is being proposed to provide hazardous liquid pipeline operators guidance when testing Best Available Technology (BAT).

**Necessity:** Hazardous liquid pipeline operators shall consider the manufacturer recommendations and sound engineering practices when testing BAT. The testing may include but is not limited to: EFRD valves, mainline block valves, CPM systems, LDS, pressure transmitters or the components of the leak detection and leak limitation system(s). This subsection is particularly important for operators to follow when testing ASOS because of the wide variety and unique characteristics of individual ASOS systems available to operators. Considering manufacturer recommendations for testing of BAT will ensure appropriate procedures are in place to test BAT in a safe manner. The OSFM is committed to implement the goals of AB 864 and doing so safely. It is necessary to include this subsection to ensure testing methods and procedures will not compromise valve and pipeline integrity while also achieving compliance with the goal of spill volume reduction of AB 864.

**Subsection 2115(f)** is being proposed to require hazardous liquid pipeline operators provide a summary report of the test results following required testing for OSFM review within 90 days of test completion.

**Necessity:** A summary report is required for the OSFM to review, understand, and verify that testing is accurate and properly performed. The OSFM should be able to determine if the system is performing as described and provides the level of protection that the operator has presented in the risk analysis. Supporting documentation may be required to verify the hazardous liquid pipeline operator's findings if the OSFM requests additional documentation. This subsection is necessary for the OSFM to ensure the goal of spill volume reduction is met through the installed BAT and to confirm that the BAT is functioning properly.

**Subsection 2115(g)** is being proposed to describe the conditions of a failed test of LDS, CPM, ASOS, Remote Controlled Sectionalized Block Valves (RCSBV), EFRD, or other BAT technology. Testing time frames are specified in Subsections 2115(a) through (e) and range from annual testing to testing every 3 years depending on the BAT utilized. However, test failures will result in an accelerated testing regime under this subsection. Should test performance results indicate failed or impaired leak detection or leak limitation, operators must annually test the BAT for the following 3 years. If two test failures occur within the 3-year cycle, operators shall submit a new or revised risk analysis for review by the OSFM.

**Necessity:** One of the goals of AB 864 is to equip pipelines with BAT to reduce spill volume. However, it is not merely enough to install and retrofit pipelines with technologies that are anticipated to be BAT. The BAT must be tested and results verified by the OSFM to ensure BAT is performing as predicted. The OSFM must have a mechanism to encourage frequent retesting to determine if BAT is working as intended or if adjustments must be made in the event of test failures. This subsection is that mechanism. If multiple test failures occur operators are required to submit a new or revised risk analysis consistent with the requirements of the proposed regulations. Allowing BAT to remain in place that fails to meet the goals of AB 864 would be counter intuitive to achieving spill reduction. This subsection is necessary for the OSFM to ensure that all BAT function as intended and meet projected leak reduction targets found in risk analyses and revised risk analyses to meet the goals of AB 864.

**Subsection 2115(h)** is being proposed to inform hazardous liquid pipeline operators that testing records be maintained consistent with Section 2118, titled "Record Retention," of the proposed regulations. Testing records shall be made available to the OSFM upon request.

**Necessity:** The primary purpose of this subsection is to ensure operators are properly testing BAT. Because the testing requirements only require the submission of a summary of testing results, operators should maintain records

that verify the conclusions, results, and methods of testing. It is necessary for pipeline operators to maintain testing records consistent with Section 2118 of the proposed regulations. These requirements are modeled after PHMSA regulatory requirements found in: 49 CFR 195.401(c)(1) General Requirements, 49 CFR 195.404 Maps and Records, and 49 CFR 195.507 Recordkeeping(OQ). Operators are familiar with federal requirements for document retention and should easily adapt existing document retention policies to comply with the proposed regulations. This subsection informs operators where to look for document retention requirements in the proposed regulations. The document retention requirements are necessary for the OSFM to confirm materials, records, or other data that are used in forming the basis of tests conducted by operators substantiate the results found in the summary submitted to the OSFM.

**Section 2116 – Training Requirements** is proposing training requirements including procedures, type of training, frequency, and document retention of training received by personnel operating pipelines with BAT installed.

**Necessity:** one of the goals of AB 864 is the reduction of spill volume through the implementation of BAT with consideration given to installation of automatic shutoff systems. Even where a pipeline is equipped with automatic shutoff systems pipeline personnel play an invaluable role in identifying and responding to potential releases. In some cases, BAT may require pipeline personnel to interact or command BAT to initiate a pipeline shutdown. Alternatively, where pipelines are shutdown automatically, personnel should understand the sequence of shutdown, alarms, and procedures to implement to confirm the automatic shutdown process is acting as intended. This section is necessary because proper training on BAT will ensure that personnel responding to a potential release do not exacerbate the consequences of the release because of inadequate procedures or training.

**Subsection 2116(a):** proposes that each implementation plan submitted by a hazardous liquid pipeline operator provide all appropriate personnel with training in the use and operation of best available technology installed on the pipeline. Each plan shall describe procedures, type of training, and the frequency of training to achieve the requirements of their job description.

**Necessity:** Existing State and Federal regulations require hazardous liquid pipeline operators to train and qualify individuals to a level commensurate with the position they are assigned. However, new technology, equipment, and operating procedures associated with BAT will require a higher level of knowledge and training than currently provided. In some instances, pipeline personnel may identify releases and respond to those releases before BAT identifies or reacts to anomalies in pipeline operations, making them a key component in spill volume reduction. A thorough training program will ensure a proper knowledge base for personnel responsible for pipeline operations and BAT equipped on those pipelines and recognizing anomalous operating

conditions. This section is necessary to achieve the spill volume reduction goals of AB 864 by informing hazardous liquid pipeline operators that a higher level of training shall be expected for personnel working with BAT installed on pipelines.

**Section 2116(b)** is being proposed to provide direction on what each implementation plan shall describe in the procedures, type of training, and frequency of training for hazardous liquid pipeline operator's personnel on policy, procedures, and the correct operations of BAT. Training shall include objectives, that address potential concerns with using BAT and proper operating parameters along with alarms including abnormal operation scenarios and the consequences of incorrect operations. If necessary, the training will provide personnel with any licenses or certifications required for the position(s).

**Necessity:** The training program must include a schedule including the frequency of training from a new employee to annual refresher training for existing employees along with a description of what type of training is to be provided. Incorporating proper procedures and policies on BAT training will facilitate risk reduction related to pipeline shutdown and release scenarios. One of the goals of AB 864 is reduction in the size of a release, providing initial and ongoing training to pipeline personnel on the uses of BAT is fundamental to proper implementation of AB 864. This section is necessary to provide direction for operators to develop or improve existing procedures for training of company personnel and ensure they are fully trained in the operations of BAT and existing equipment on the pipelines.

**Section 2116(c)** is being proposed to inform hazardous liquid pipeline operators that training records be maintained consistent with Section 2118, titled "Record Retention," of the proposed regulations. Training records shall be made available to the OSFM upon request.

**Necessity:** This section provides a requirement to hazardous liquid pipeline operators that they maintain training records for each employee that operates a pipeline and that this documentation shall be provided to OSFM upon request. Including this requirement will further the goal of installing BAT and ensuring its safe and effective operation. The document retention requirements are necessary for the OSFM to confirm materials, records, or other data that are used in forming the basis of trainings and prove training is provided to pipeline personnel by operators.

**Section 2117(a) – Risk Analysis Updates and Review** is being proposed to require updates and resubmittal of previously accepted risk analysis for review every five years.

**Necessity:** One of the primary goals of AB 864 is the protection of state waters and wildlife, as well as EESAs. To achieve this goal, pipeline operators are required to construct or retrofit pipelines near EESAs with BAT to reduce the size of a release, thereby protecting these precious resources. Areas that are considered EESAs, are not

limited to just wildlife but include habitat and myriad other resources deemed valuable enough to protect under State law. These resources are mobile, new species may be identified as needing protection, and other locations such as breeding grounds may be added to areas meeting the definition of an EESA. Similarly, new technologies may be developed over time that could be considered BAT because they represent significant improvements over existing technology, may be more effective, less costly, or surpass existing BAT so significantly to warrant review of currently installed BAT. This does not mean that operators will be required to retrofit BAT on a rolling 5-year basis. However, this subsection affords the opportunity to review BAT and potentially require retrofit where technologies yet to be developed supplant technology existing at the time the proposed regulations are adopted. Requiring operators to consider these factors on an ongoing basis and communicate their conclusions to the OSFM is necessary to achieve the goal of protecting existing and yet to be identified EESAs, and to ensure advancements in BAT are considered in future pipeline operations.

**Subsection 2117(b)** is being proposed to allow OSFM to require earlier or more frequent resubmission or updates to risk analyses prior to the passage of 5 years.

**Necessity:** This subsection addresses the possibility that technologies, laws, or other unknown factors may lead to the need for review of previously submitted risk analyses considering future information coming to light. For example, technology considered BAT at the time a risk analysis is accepted may suffer from defects unknown at that time. Should those defects be so severe as to render the goals of AB 864 unattainable it is only natural to conclude that an alternative technology be utilized to meet the requirements of AB 864 before waiting 5-years to address the issue. It is necessary that the OSFM have the authority to require a risk analysis resubmission earlier than every 5 years to ensure the goals of AB 864 are met in the event there is a change in law, statute, or regulation; the development of new best available technology as determined by OSFM; deficiencies identified in the risk analysis following a spill or release; deficiencies identified following testing; significant changes in pipeline operations or profile; and any other situation deemed appropriate by OSFM.

**Subsection 2117(c)** is being proposed to allow OSFM to require earlier or more frequent resubmission or updates to risk analyses prior to the passage of 5 years, when a hazardous liquid pipeline operator transfers operations of a pipeline.

**Necessity:** Pipelines are transferred, sold, removed from service and returned to service on a regular basis. Requiring pipeline operators to notify the OSFM of any of these transactions ensures that our office can review the appropriate risk analyses and determine if the BAT on the pipeline(s) meets the goals of AB 864 and the proposed regulations. Furthermore, operators will be more familiar with the specific requirements imposed on particular pipelines. Requiring the

notification is necessary for the OSFM to ensure incoming pipeline operators are aware of on-going and future compliance requirements for the pipeline and aware of dates for review or deliverables to the OSFM. Additionally, review of a risk analysis on a pipeline that will be transitioned to another operator or returned to service will allow the OSFM to continuously improve the regulatory program and incorporate lessons learned over time to more effectively achieve the goals of AB 864.

**Section 2118 – Record Retention** is being proposed to require pipeline operators to retain specific records and supporting documentation for either the life of the pipeline, six years, or three inspection cycles, depending on the type of records.

**Necessity:** An essential component of AB 864 is OSFM's obligation to assess an operator's risk analysis and supporting documentation. Having established document retention periods will ensure that operators maintain appropriate documentation necessary for the OSFM to review risk analysis records, implementation plans, testing results, training requirements, and supporting documents related to compliance with the proposed regulations. A document retention schedule will assist operators and the OSFM in comparing and re-evaluation of risk analysis on a pipeline. Similarly, the record retention requirements will help the OSFM and operators track trends in best available technology, assumptions, and risk analysis that will assist in developing a more robust and effective implementation of AB 864 and the proposed regulations.

**Section 2119 – Confidential Treatment of Information** is being proposed to afford operators the opportunity to request confidential treatment of information submitted in risk analysis and plans or associated documents, including but not limited to the proposed location of automatic shutoff valves or remote controlled sectionalized block valves. This section also provides the process for requesting confidential treatment of information submitted in the risk analysis and plans or associated documents. Additional detail explains how information deemed confidential by an operator should be submitted, identified, supported by legal authority, and provides for a contact person that the OSFM should inform if possible confidential information is sought to be released. The ultimate decision on whether information identified by operators is confidential or exempt from disclosure under applicable law lay with the OSFM or as directed by court order.

**Necessity:** This section aims to achieve the requirement in the authorizing statute to allow operators an opportunity to request confidential treatment of information submitted to the OSFM contained in the risk analysis, plans, or associated documents. It is the policy of the OSFM that all records not exempt from disclosure by law shall be open for public inspection pursuant to the California Public Records Act. The authorizing statute specifically mentions the potential confidential nature of proposed valve locations. Sensitive geophysical data, such as valve locations, may be considered exempt under Section 6254(e) of the California Public Records Act. Similar exemptions exist under the federal Freedom of Information Act, as well as other laws aimed at preventing

domestic terrorism and protecting human health and the environment. Valve locations are commonly considered sensitive information due to unauthorized valve closures by anyone but the pipeline operators. Unauthorized valve closures could result in catastrophic pipeline failure, impact the environment, and place human health at risk. Incidents of unauthorized valve closures carry serious consequences including potential criminal liability. Though AB 864 specifically calls out valve locations as potentially confidential, there may be other information submitted to the OSFM that could be considered confidential beyond the provisions found in the California Public Records Act. The requested submission materials and process provided in this section are designed to assist the OSFM in properly determining if confidential information in its possession is exempt under the California Public Records Act or other applicable law while meeting the goals of AB 864. Additional provisions of this section explain time frames for the OSFM and operators to consult on issues of possible confidentiality and direct operators to seek appropriate court ordered remedies if they disagree with determinations to disclose information by the OSFM. This section is necessary for the OSFM to obtain needed information from the regulated community to properly evaluate risk analysis and plans consistent with the goals of AB 864, while balancing obligations under the law to exempt disclosure of potentially sensitive information.

**Section 2120 – Enforcement and Compliance Orders** is being proposed to address the enforcement authority of the OSFM when a hazardous liquid pipeline operator fails to meet the requirements of this Article.

**Necessity:** It is necessary to include this section so the OSFM can take enforcement action where warranted to ensure compliance with the proposed regulations and AB 864.



## **Standardized Regulatory Impact Assessment**

### **Requirements For New, Replacement, Or Existing Pipelines Near Environmentally And Ecologically Sensitive Areas In The Coastal Zone 10/31/2018**

#### **I. Summary**

All state agencies that propose major regulations must complete a Standardized Regulatory Impact Assessment (SRIA). This requirement is described in California Government Code Section 11346.36 and in Title 1 of the California Code of Regulations, sections 2000 through 2004. A regulation is considered a major regulation and subject to the SRIA requirements, where the estimated costs or benefits of the regulation will be more than \$50 million in any given year following implementation of the proposed regulation.

The Office of the State Fire Marshal – Pipeline Safety Division (OSFM), within the California Department of Forestry and Fire Protection (CAL FIRE), analyzed the potential economic impact of the proposed regulatory Requirements For New, Replacement, Or Existing Pipelines Near Environmentally And Ecologically Sensitive Areas In The Coastal Zone (EESA Regulations). OSFM determined that the proposed regulations were major regulations because the estimated costs or benefits could exceed the \$50 million total annual impact threshold.

This analysis uses cost estimates provided directly from industry, vendors, and suppliers of the pipeline industry, but when necessary, makes assumptions to ensure economic costs and benefits were captured to the maximum extent possible. A conservative cost estimate approach was taken in an attempt to avoid underestimating potential economic impacts. Where uncertainty existed as to whether costs would be incurred by the regulated community in complying with the proposed regulations, the assumption was made to include those costs in the analysis.

The proposed EESA Regulations were developed pursuant to the requirements of the authorizing legislation found in Assembly Bill 864 (AB 864) (Williams, Chapter 592 statutes of 2015), codified at California Government Code section 51013.1. The intent of AB 864 and the proposed regulations is to protect state waters and wildlife by reducing the amount of oil released in an oil spill through the installation of best available technology on pipelines near environmentally and ecologically sensitive areas in the Coastal Zone.<sup>1</sup> The proposed EESA Regulations will impose additional requirements on operators of existing hazardous liquid pipelines near environmentally and ecologically sensitive areas. Any new or replacement pipelines are also subject to the additional requirements. The requirements include the submission of a pipeline

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<sup>1</sup> For purposes of the regulations, "oil" means hazardous liquid as defined in Section 195.2 of Title 49 of the Code of Federal Regulations: "Hazardous liquid means petroleum, petroleum products, anhydrous ammonia, or ethanol."

specific risk analysis that considers use of best available technology, implementation plans, testing and training requirements, and periodic review of previously submitted risk analyses. Operators are required to be in compliance with the proposed regulations within 30 months of enactment. This SRIA includes discussion of the need for the proposed regulations; a description of the baseline used to analyze the potential financial impacts; and a breakdown of the benefits, costs and economic impact on industry, the environment, and the public.

This SRIA discusses the potential benefits to California citizens, the environment, and industry by avoiding harm that might occur without the new regulations. By implementing the proposed regulations, a substantial reduction in risks, costs, and potential adverse impacts of releases from hazardous liquid pipelines will be realized. Additionally, an analysis of alternatives to the regulations and estimates of potential direct and indirect costs is discussed.

#### A. Statement Of Need

On May 19, 2015, a hazardous liquid pipeline in Santa Barbara County ruptured and released approximately 100,000 gallons of crude oil. Around 21,000 gallons ran down a ravine, under a freeway, and reached the Pacific Ocean near Refugio Beach. Once the spill entered the ocean the impacts spread over 25 miles of coastline and ocean. The harm realized from the release were sizeable in both economic and environmental terms. Had the pipeline been equipped with automatic shut off valves, remote controlled sectionalized block valves, or leak detection technology, the impact of the release would have been controlled and limited.

On June 26, 2015, the operator responsible for the spill estimated cleanup costs incurred up to that point in time approached \$96 million. A recent estimate from the operator in December 2017 placed the total costs of cleanup, economic impacts, Natural Resource Damage Assessment (NRDA), and litigation closer to \$335 million but are still being determined. The goal of AB 864 is to protect the State's vital natural resources through reducing the harm incurred in the event of a hazardous liquid pipeline release. The new regulatory requirements imposed on pipeline operators will address the need to reduce harm subsequent to a pipeline release, while reducing costs associated with cleanup, litigation, public health and the environment, and lost business revenue to coastal communities.

The OSFM's Pipeline Safety Division (PSD) exercises exclusive safety, regulatory, and enforcement authority over approximately 6,500 miles of intrastate hazardous liquid pipelines. The OSFM consists of engineers, analytical staff, and clerical support located in Northern, Central, and Southern California that inspect pipeline operators to ensure compliance with federal and State pipeline safety laws and regulations. The OSFM is

also responsible for the investigation of pipeline ruptures, fires, and accidents for cause and determination of probable violations of pipeline safety laws and regulations.

Prior to passage of AB 864 and the proposed EESA Regulations, with their specific emphasis on protection of environmentally and ecologically sensitive areas with a nexus to the Coastal Zone, the PSD inspected pipeline operator's Integrity Management Plans (IMP) for compliance with federal requirements on pipelines that could affect High Consequence Areas (HCA). HCAs are designated important resources, such as drinking water supplies, high population areas, and unusually sensitive ecological areas that include federally listed threatened and endangered species not limited to Coastal Zones, among others. The federal HCA requirements are similar to California EESAs and the proposed EESA Regulations, in that operators must evaluate pipelines that could affect EESAs through risk analysis and evaluate the quantity of release through implementation of best available technology on pipelines. The difference between HCAs and EESAs is the broader definition of EESAs, which includes State or federally-listed rare, threatened or endangered species, shoreline, habitat, terrestrial plants and animals to name a few. Simply stated, AB 864's inclusion of EESAs is an expansion of what operators are currently required to do under federally required HCAs, but focused on the ecological and economic impacts of a pipeline release that are distinct and unique to California.

It should be noted that the Refugio Beach pipeline was not subject to OSFM jurisdiction at the time of the release because it was classified as an interstate pipeline, not an intrastate pipeline. However, the pipeline failure served to highlight the possibility that existing federal regulations for HCAs were not sufficient to ensure the protection of California's uniquely situated environment. The proposed EESA Regulations represent a preemptive, thorough, risk-based approach to reducing harm to the environment should an intrastate pipeline suffer a release in California.

This SRIA includes broad consideration of economic impacts associated with the requirements of the proposed regulations. The table in Appendix A, shows the anticipated direct cost of \$220 million resulting from compliance with AB 864 and the proposed EESA Regulations. AB 864 requires operators to achieve compliance within 30 months of enactment of the regulations. OSFM anticipates the majority of compliance costs will be incurred by operators in the first three years following adoption of the regulations. The costs incurred during that time frame are assumed to be construction and equipment purchase related costs, which are anticipated to be the largest expenses related to compliance for the majority of operators.

## B. Background Information

Data gathered by OSFM indicates for reportable spills in California for years 2010 through 2016, there were 118 hazardous liquid spills subject to OSFM jurisdiction totaling 7,713 barrels released and total response costs of approximately \$38 million. These costs do not include NRDA's or the Refugio Beach spill. Of those 118 spills, 40 occurred on pipelines in the Coastal Zone and therefore will likely be subject to the proposed EESA Regulations. A total of 2,883 barrels were released from those 40 Coastal Zone pipeline spills with a total response cost of almost \$17 million.

The data shows that approximately 33% of spills amounting to 37% of the total barrels released in California occurred in the Coastal Zone area that AB 864 intends to address. The cost amounted to approximately 44% of total costs operators spent in response to spills. The data indicates that response costs are higher in the Coastal Zone though those spills represent a smaller total number and volume of product spilled. It should be noted that response costs are highly variable due to a multitude of factors including: spill size, product released, and location of spill. For example, the projected response and cleanup costs related to the Refugio Beach Spill are estimated at \$335 million. When the effect to local businesses, petroleum industry, and tax revenues are included in spill costs the economic impacts expand exponentially as they are passed through the California economy.

The OSFM drafted the proposed regulations and identified potential increased costs of \$220,000,000 million to operators for construction and equipment requirements associated with Risk Analysis and Implementation Plans, Leak Detection Systems, Automatic Shutoff Valves, Remote Control Valves, and Permitting. Under the current regulatory scheme operators already incur costs related to the above listed items as part of necessary pipeline operation and maintenance activities. These costs are incorporated in pipeline rates that pipeline operators pass on to shippers. The cost to operate a pipeline is variable and includes factors such as age of the pipeline, location, design, and product shipped. Data indicates that the cost to operate a pipeline can range from \$37,000 to \$175,000 per mile a year. If we use the high cost estimate and apply it to all 6,500 miles of hazardous liquid pipelines in California, operators incur annual operating costs of \$1,137,500,000 (6,500 miles x \$175,000). This cost estimate represents the baseline expense that operators in California would spend per year on operations even without the proposed regulatory change. As is discussed below, the OSFM estimates that only 604 miles of pipeline will be impacted by the proposed regulations. Assuming the 604 miles of pipeline incur the same operation and maintenance costs, operators incur \$105,700,000 per year on pipelines that may be subject to the proposed regulations. This represents a smaller portion of the baseline

costs and accounts for roughly 10.7% of the overall operation and maintenance costs operators incur on a per mile basis per year under the current regulatory program.

As noted above and discussed in more detail below, the OSFM anticipates an increased cost of \$220 for full implementation of the proposed regulations with \$18.8 million incurred in year one and \$100.5 million incurred in year two and then again in year three. Costs are expected to return to baseline costs in year four and beyond. Applying the cost increase to the 604 miles of pipeline estimated to be impacted by the proposed regulation represents a potential increased cost of 18%, 95%, and 95% in years one, two, and three (respectively) when compared to pre-regulatory implementation operation and maintenance costs of \$105,7000,000 per year. After year three operation and maintenance costs should return to the pre-AB 864 level of \$105,700,00 per year for the 604 miles of pipeline impacted by the proposed regulations. If operators share the anticipated costs proportionately across all 6,500 miles of pipeline in California, the increased costs are 1.6%, 8.8%, and 8.8% in years one, two, and three (respectively) over pre-regulatory implementation operation and maintenance baseline costs of \$1,137,500,000.

Depending on how the costs are distributed, some operators may incur higher or lower costs based on unique pipeline factors. When comparing the proportional increase in costs to the baseline of all 6,500 miles of pipeline the data indicates a cost increase range of 1.6% to 8.8% for a three-year period following regulatory implementation. In many cases these increases can be absorbed through rate adjustments through the Public Utilities Commission, which allows an operator to apply for a rate increase every year of approximately 10%. Similarly, rate adjustments are allowed for cost impacts related to regulatory compliance, such as those proposed in AB 864. Many of the costs associated with operation and maintenance expenses will be in material, hardware, plants, and facilities infrastructure that can be depreciated overtime. This should lead to a further reduction in cost impacts to operators. In sum, where an operator incurs increased costs there are several avenues that afford recovery of those costs to continue operations and remain profitable.

### C. Public Outreach and Input

The OSFM conducted several public workshops and meetings with stakeholders to discuss the regulatory objective and requirements of AB 864, solicit specific input on how to achieve the goals of AB 864, receive comments on potential economic impacts, as well as suggested alternative approaches to implementation. In June 2016, the OSFM presented the newly enacted legislation to operators and provided a summary of the requirements of AB 864. Following the June 2016 meeting, the OSFM convened a stakeholder working group comprised of industry, government, and non-governmental

organizations with expertise in hazardous liquid pipelines in California as a resource in drafting the proposed regulations. In January and February 2017, the OSFM conducted three public workshops, which were webcast and made available by teleconference. The proposed regulatory provisions were presented and opened to public comment at those workshops. The three workshops were held in Sacramento (January 5, 2017), Santa Barbara (February 2, 2017), and Huntington Beach (February 16, 2017). Information regarding these workshops and any associated materials are posted on the OSFM website and were distributed through a list of interested parties managed by the OSFM. Future updates will also be posted to the website.

In addition to the workshops, the AB 864 legislation directed the OSFM to consult with the Office of Spill Prevention and Response (OSPR) about potential impacts to state waters and wildlife in developing the proposed EESA Regulations. OSPR's expertise, input, and assistance has been instrumental in developing the proposed regulations. The OSFM also presented the draft proposed regulations to various State and federal agencies at two quarterly meetings hosted by the United States Environmental Protection Agency (July 12, 2016 and January 10, 2017).

Following the workshops, stakeholder meetings, and presentations, the OSFM considered, and where appropriate incorporated, comments in to the proposed EESA Regulations. The OSFM also solicited input from operators on economic impacts of the proposed regulations. Where additional information was needed, the OSFM gathered cost data from various resources engaged in pipeline operations.

## II. Benefits

AB 864 and the proposed EESA Regulations are designed to reduce the amount of oil released in an oil spill to protect state waters and wildlife in the Coastal Zone. Through the implementation of the EESA Regulations, state waters and wildlife will be more effectively protected from the resultant harm of an oil spill when compared to existing law. There is no guarantee another spill will not occur. However, the proposed regulations should reduce the consequences of a release and corresponding negative environmental and economic impacts if a spill occurs.

In 2000, California's ocean economy comprised of natural resources found on the coast and in the coastal ocean represented approximately \$42.9 billion of California's gross state product (GSP), estimated at \$1.15 trillion, and provided approximately 408,000 jobs.<sup>2</sup> At that time, tourism and recreation provided approximately 76.8% and 58% of

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<sup>2</sup> Kidlow, Judith and Colgan, Charles S., 2005. *California's Ocean Economy*. National Ocean Economics Program. The jobs numbers are conservative and did not include multiplier effects, with multipliers, the number of total jobs approaches 700,000 and wages reach \$24 billion.

the ocean economies' portion of employment and GSP, respectively. Minerals, including oil and gas production, provided .2% employment and 1.9% of GSP for the ocean economy. Living resources, such as commercial fishing, provided 1.5% employment and 1.9% of GSP for the ocean economy. When the three sectors of the ocean economy described above are combined, they comprised 2.47% of California employment and 1.77% of California GSP for 2000. The proposed EESA Regulations and the corresponding reduction in consequences of a spill will better protect environmentally and ecologically sensitive areas, while simultaneously conferring an economic benefit on both the public and businesses that are a significant source of employment and GSP in California's coastal economic sectors.

A. Benefits to Individuals and the California Public

While the proposed EESA Regulations will not directly affect individuals, the anticipated reduction in the number and severity of spills will result in overall benefit of continued access to recreational resources that are often impacted following a spill. Resources impacted include beaches, marshes, rivers, habitat, plants, animals, and recreational fishing to name a few. Studies have shown that almost two-thirds of California's residents visit one of the State beaches at least once a year and found that the total number of days that residents went to the beach reached approximately 566.8 million days per year.<sup>3</sup> Individuals use coastal resources differently; beach day visits are only one example of economic effects coastal resources have on individuals in California. However, the value attached to beach day going activities in California is sizeable with estimates that such activities may exceed \$5 billion annually.

Following the Refugio Beach spill, the Refugio and El Capitan State beaches were closed along with campgrounds at those locations. Other beaches in the Los Angeles area, including Manhattan Beach and Long Beach, were also closed. Offshore fishing in the Santa Barbara area covering 26 miles by 6 miles was also closed. In addition to the lost use of public access to the shore and fishing activities, more long-term resources were also affected, including the death of various birds and mammals.

The cost to the individuals that would have had access to these resources, and the use and enjoyment provided, is difficult to determine. However, these costs are often offset or quantified through NRDA's that attempt to evaluate compensatory restoration. Essentially, NRDA's serve as a tool in quantifying lost access to ecological resources and recreational uses by reducing them to a dollar amount. The costs associated with the Refugio Beach spill are still being determined, but when looking at historical costs attributed to oil spills that impacted recreational fishing and beaches, the lost uses are

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<sup>3</sup> King, Phillip G. and Potepan, Michael, 1997. *The Economic Value of California's Beaches*. San Francisco State University: Public Research Institute.

not insignificant. For example, two prior spills along the California coast from the Cosco Busan and American Trader oil tankers resulted in lost trips to coastal resources amounting to \$22.2 and \$12.2 million, respectively.<sup>4</sup> All spills are different, but these examples serve as an illustration of the potential costs to individuals following a spill.

A reduction in spill frequency and size is significant when consideration is given to the economic benefits conferred to an individual or individual's access and use of California's coastal resources which range from economic, environmental and public safety benefits, tourism, and wildlife viewing. At a minimum, the proposed EESA Regulations act to reduce the economic cost of individual lost use by maintaining access to recreational resources.

#### **B. Benefits to California Businesses**

Hazardous liquid pipelines are an important part of California's economy. Statewide businesses depend on pipelines to supply refineries, deliver product to other pipelines for transportation throughout the State, and to provide a reliable source of fuel to our cars, trucks, and airplanes. The proposed EESA Regulations will benefit industry businesses, and indirectly benefit California businesses separate from the pipeline industry, by better ensuring pipelines are operated with a reduced severity of harm in the event of a spill.

The proposed regulations may benefit industry businesses by reducing the size of a spill. Large spills occur infrequently, however, when they do occur the costs can be significant as evidenced by the Refugio Beach spill. A reduction in the size of a spill should correlate to lower costs incurred by industry to clean-up, respond, and compensate for damages as a result of the spill. Likewise, a reduction in legal costs and additional regulatory requirements on pipelines that have experienced spills should result in lower costs to industry businesses in the long-term.

Pipelines are assets to industry, but only where they are operational and transporting product. For example, the pipeline responsible for the Refugio Beach spill has not been operational since May of 2015 following the spill. A pipeline that does not transport product is economically inefficient. Typically, pipelines that experience larger spill volumes remain inactive for longer periods of time when compared to pipelines that experience smaller spill volumes. The reduction in the size of a spill may lead to a shorter time frame of pipeline inactivity following a spill, thereby allowing operators to return a pipeline to service sooner and reducing lost revenue.

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<sup>4</sup> <https://response.restoration.noaa.gov/about/media/how-do-we-measure-what-we-lose-when-oil-spill-harms-nature.html>



Pipelines are interconnected throughout the State, often requiring multiple pipelines operated by multiple businesses to deliver product to an end destination. When one pipeline is offline due to a spill, the economic impacts ripple through the industry. Following the Refugio Beach spill, at least four other pipelines were rendered unusable because they could not ship product. The economic impacts are not limited to pipeline operators. The realm of economic impacts from the Refugio Beach spill also include five off-shore platforms, which cannot produce or deliver crude on-shore without access to one of the five pipelines that are not in service. The extent of the economic impact to one pipeline operator lead to the company declaring bankruptcy, abandonment of hazardous liquid pipelines throughout the State, and the abandonment of one off-shore platform. When a spill occurs on one pipeline, it influences the entire industry, including potential bankruptcy and lost jobs.

Indirectly, businesses benefit from reduced spill sizes. As noted above, a significant portion of GSP is derived from coastal resources and related activities. When those coastal resources are damaged or closed for any period of time, non-industry businesses, such as commercial fishing and travel and tourism, lose revenue as well. Businesses can submit claims to those responsible for spills to recoup lost revenue, but those claims may take years to settle. By reducing the size of a spill, the proposed EESA Regulations act to ensure the negative economic effects of a spill on non-industry businesses are lessened or removed.

#### C. Benefits to State and Local Government

State and local governments benefit from operational pipelines. For example, the California State Lands Commission generates money for State coffers through leases granted to off-shore oil production facilities. One operator off the coast of Santa Barbara generated approximately \$160 million in State revenue since 1997.<sup>5</sup> Local government also receive fees from pipeline operators used to fund certain programs within their communities.

As previously discussed above, one operator declared bankruptcy following the shutdown of the pipeline responsible for the Refugio Beach spill. When that operator declared bankruptcy, it quitclaimed its off-shore lease to the California State Lands Commission, abandoned its oil platform, and no longer generated any fees for pipelines in Santa Barbara County because it could no longer produce or deliver oil in its pipelines. As a result, Santa Barbara County, among others, lost revenue used to fund schools and other programs. Furthermore, the California State Lands Commission will lose State revenue from the abandonment of the oil platform, and is also now faced with the responsibility of decommissioning the oil platform because the former operator

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<sup>5</sup> <http://www.slc.ca.gov/Info/SouthElwood.html>

cannot afford to do so. The estimated cost of decommissioning the assets of the bankrupt operator, including the oil platform, ranges from \$40 to \$120 million dollars and could take up to three years to complete. Whatever costs are not paid for through surety bonds are subject to recovery from the bankrupt operator, typically for pennies on the dollar.

By ensuring pipelines are operated safely and the size of potential spills reduced, pipelines will remain operational or shut down less frequently, leading to increased State and local revenue for important programs like schools. Additionally, by keeping pipelines operational the likelihood of bankruptcies and the State funding decommissioning costs is lessened.

### III. Direct Costs

#### A. Direct Costs on Individuals

It is possible that the proposed regulations could contribute to a nominal increase in the price of refined products, such as gas, diesel, or aviation fuel. These costs are not direct cost to the regulated community, but considered pass-through costs, as the regulated community will likely pass these costs on to consumers through increased fuel prices over time. Any increase passed on to consumers would not be immediate and would likely take several years because the California Public Utilities Commission (CPUC) sets rates for pipeline operators. If an operator wishes to increase the cost to use its pipeline to transfer product, that operator would need to seek approval from the CPUC.<sup>6</sup> Then the operator would need to wait for current shipping contracts to expire before incorporating any CPUC approved increased shipping rate costs. Attempting to quantify these costs has not been undertaken in this analysis or in the estimates that incorporate RIMS II multipliers discussed in the Economic Impacts section below, but merited some discussion. For purposes of this analysis, refined product rates are considered static.

#### B. Direct Costs on California Businesses

The following discussion of direct costs includes estimates of costs imposed on approximately 40 pipeline operators and the roughly 457 pipelines that may be subject to the requirements of the proposed EESA Regulations. The OSFM estimates total direct costs on industry of approximately \$220 million which can be amortized by the industry; thus, the realized costs on industry is estimated to be significantly less than the full cost of compliance when amortized consistent with generally accepted accounting principles. The OSFM used high estimates throughout the SRIA for estimating costs when multiple estimated costs were provided.

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<sup>6</sup> <http://www.cpuc.ca.gov/General.aspx?id=7789>

The OSFM drafted the proposed EESA Regulations after careful consideration of industry best practices and the purpose of AB 864. To identify industry best practices, the OSFM used recommended practices from the American Petroleum Institute (API), existing requirements found in the Code of Federal Regulations (CFR), at Title 49 Parts 190 through 195, solicited input from the public, industry, NGOs, State and local governments, industry experts, and consulted numerous engineering and scientific studies. With this significant body of information collected, the OSFM drafted the proposed regulations and identified the following requirements that will likely result in direct economic impacts to pipeline operators:

- Risk Analysis and Implementation Plans
- Leak Detection Systems
- Automatic Shutoff Valves
- Remote Control Valves, and
- Permitting.

The proposed EESA Regulations will be applicable to both new and existing pipelines. However, the majority of costs will be associated with bringing existing pipelines into compliance. Therefore, the direct costs estimated below are based off the potential impacts to an operator based on the retrofit of an existing pipeline. This analysis also includes an example of the direct costs incurred based on the costs and assumptions below as applied to a recently proposed pipeline replacement that is planning to be AB 864 compliant.

#### 1. Risk Analysis and Implementation Plans

AB 864 requires operators to conduct a risk analysis that considers the use of Best Available Technology (BAT) on new and existing pipelines to reduce the amount of oil released in an oil spill to protect state waters and wildlife. Operators must also submit a plan to retrofit existing pipelines with BAT within 30 months of the enactment of the proposed regulations. The OSFM must assess the adequacy of an operator's risk analysis and the plan submitted to implement the use of BAT in the risk analysis. For purposes of this SRIA, the costs of the risk analysis and plan have been combined and are collectively referred to as risk analysis.

The focus of AB 864 is the reduction in the amount of oil released in an oil spill, however no set amount of reduction was specified. The Legislature understood that no single pipeline is the same across California, therefore the application of BAT on one pipeline may not correlate to a reduction in spill amount on another pipeline. Because no one pipeline is identical, each operator will need to submit an individual risk analysis

or analyses proposing various applications of BAT for the approximately 457 pipelines anticipated to fall within the universe of the proposed EESA Regulations.

The proposed regulations provide operators with detailed information that must be included in all risk analyses for the OSFM to properly conduct its assessment. Certain BAT must be considered, as it is specified by AB 864, but operators are granted flexibility in the approach, methods, and technologies considered in the submitted risk analysis with the ultimate purpose of reduction in the amount of oil released in an oil spill. An operator can demonstrate that an alternative technology not listed in AB 864 is BAT for a particular pipeline, and if the OSFM accepts the risk analysis as adequate, the operator can use the alternative BAT.

The OSFM will determine on a case-by-case basis whether the operator's risk analysis meets the requirement of reduced spill amount, whether the proposed BAT represents technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill with consideration to whether the processes are currently in use and could be purchased anywhere in the world, and consideration of the engineering feasibility of the technology proposed. By affording operators flexibility in meeting the requirements of AB 864, the proposed EESA Regulations also provide a flexible approach to compliance. However, the inherent need to conduct and evaluate individual risk analyses on myriad variables across different pipelines and pipeline operators creates cost projection difficulties. For example, some operators have stated that they will use in-house staff for drafting risk analyses, while other operators will contract out for this service.

For purposes of this assessment, the assumption was made that costs for in-house and contracting out risk analysis would be the same. While the costs may vary between in-house or contracting for a risk analysis, the assumption was necessary because cost estimate information could not be located, was too speculative to rely on, or was not made available to the OSFM. The flexibility afforded operators in conducting the risk analyses is anticipated to result in variations in the tools and associated costs used to develop the risk analysis. For example, the use of different modeling software across all risk analyses could vary widely with the needs of the operator. However, the risk analysis in the proposed EESA Regulations is similar to operator requirements under federal HCA regulations requiring risk analysis. This similarity represents possible cost savings in the form of using processes, tools, and evaluation methods already in place for federal regulatory requirements.

With those caveats in place, the OSFM estimated the cost of a risk analysis at between \$15,000 and \$25,000. The lower and higher numbers represent the differences that pipelines encounter in operations, with the low representing a relatively few number of

variables and complexity, while the higher number represents the inverse. Assuming that all 457 pipelines fall within the scope of the proposed regulations and require the more expensive analysis costs of \$25,000, an estimated one time initial expense of \$11,425,000 is anticipated to be incurred on risk analyses. The majority, if not all, of this cost will be incurred in the first year of the regulation. The OSFM assumed that, at a minimum, approximately 253 of the 457 pipelines that submit risk analysis will require some form of retrofit because they are either located directly in the Coastal Zone or are in such close proximity to an EESA in the Coastal Zone that some form of BAT will be required.

## 2. Use of Best Available Technology

AB 864 requires operators to consider the use and installation of BAT in their risk analysis. BAT is described in AB 864 as including, but not limited to, leak detection, automatic shutoff systems, and remote controlled sectionalized block valves. The draft regulations include further BAT to be considered such as Supervisory Control and Data Acquisition (SCADA) systems, Leak Detection Systems (LDS), Computational Pipeline Monitoring (CPM), and Emergency Flow Restriction Devices (EFRD). Other technologies or combinations of the listed technologies can be considered by operators and may be acceptable to the OSFM following review of the risk analysis. Regardless of the BAT eventually chosen, the BAT proposed for retrofit in a risk analysis should be looked at collectively for meeting the requirements of AB 864 and the proposed EESA Regulations.

For example, an LDS that quickly identifies a rupture may be less effective at achieving compliance with the proposed regulations if not accompanied by an automatic shutoff system or remote controlled sectionalized block valves that would allow for immediate action in response to a leak alarm. Likewise, an LDS that lacks sensitivity, does not operate under no-flow conditions, or where performance falls off under slack-line conditions may not be acceptable. It is anticipated that most pipelines will require a combination of BAT to meet the requirements of the proposed EESA Regulations.

The OSFM understands that some of the pipelines that will be required to comply with the proposed EESA Regulations will already be equipped with some form of leak detection or shutoff systems and related hardware for responding to and isolating leaks on a pipeline. Some of these technologies may or may not represent BAT. As discussed in more detail below, to fully account for potential cost impacts, the OSFM assumed that some pipelines would require the installation of BAT.

### a. Leak Detection Systems and Technologies: LDS, CPM, and SCADA

Pipelines that could impact an HCA are currently required under federal regulations to consider how to reduce spill volume should a release occur. These pipelines are required to have LDS.<sup>7</sup> Many LDS technologies provide operators with feedback on whether there is a release occurring, which reduces response time to shut down a pipeline, thereby reducing the amount of a release. It is assumed that some of the pipelines subject to the proposed EESA Regulations will already have leak detection technology installed and may not incur additional LDS costs on existing pipelines. However, a discussion of the uses, purposes, and costs associated with LDS is provided below to provide a conservative approach to cost impacts. The OSFM assumed that approximately 127, or roughly 50%, of the 253 pipelines that will require BAT are likely to need new or retrofit LDS to meet proposed regulatory requirements.

A study conducted on LDS across the United States from January 2010 to July 2012 found that pipeline controllers or control rooms identified releases approximately 17% of the time following a release.<sup>8</sup> While CPM identified leaks in 20% of pipelines where a CPM system was functional at the time of the release. SCADA was the leak identifier in 28% of the releases where a SCADA was functional at the time of the release. One of the observations of the study found that procedures may have allowed alarms to be ignored or to re-start pumps or open a valve by controllers in several of the larger volume releases, thus increasing the size of the release. Large distances between block valves may have also contributed to the size of some releases. As the study indicates, the value of CPM and SCADA is in the percentage increase in identification of leaks in addition to leaks identified by controllers or control room personnel.

Leak detection systems and technologies are available in many different forms ranging from simple to very complex. It is important to note that an LDS has no effect on reducing the likelihood of a leak occurring, but is critical to responding to a leak quickly. LDS are systems, and like any system can be broken down to important parts. Here, the key parts of the system are technologies, procedures, and personnel. A weakness in one of these areas can have a significant impact on response times and spill reduction. This is why the proposed regulations include requirements for operators to develop procedures and training for personnel, beyond simply retrofitting a pipeline with BAT.

SCADA and LDS should not be confused as the same and are distinct technologies. Additionally, CPM is typically considered a part of LDS. For differentiation, the SCADA

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<sup>7</sup> For ease of reference, the term LDS is used in this SRIA to refer to SCADA, LDS, and CPM, unless otherwise specified.

<sup>8</sup> Kiefner and Associates, Final Report on Leak Detection Study, U.S. Department of Transportation – Pipeline and Hazardous Materials Safety Administration, December 10, 2012.

is about controlling the pipeline operating parameters in response to normal and abnormal operating situations. LDS is separate from SCADA in that it focuses on determining if there is an unintentional loss of fluid containment that requires remedial action. LDS may use SCADA instrumentation, but it is not necessary for all types of LDS to use SCADA. LDS are intended to detect leaks, ruptures, and small seeps, which means that different LDS are typically appropriate for an intended use. An LDS intended for rupture mitigation for example, need not be very sensitive, but should be very fast. Similarly, an LDS should provide information to assist with location of a release on a pipeline, not just that a release is occurring, so appropriate response action can be taken, such as the closure of valves, to isolate the ruptured section of pipeline.

The variety of leak detection technologies available is reflective of operator requirements in terms of sensitivity, accuracy, and reliability. Operators have a strong preference for leak detection that utilizes existing field equipment. This explains why most pipelines use pressure/flow monitoring and CPM, since the monitoring is already provided by the SCADA system and CPM is a relatively inexpensive addition to an existing metering infrastructure. At best, pressure/flow monitoring alone will catch large ruptures, while leak detection by CPM is limited by the accuracy of the metering and line fill uncertainties.

In some cases, currently installed LDS, CPM, or SCADA may not represent BAT for leak detection based on review of an operator's risk analysis. For example, CPM may be insufficient to detect leaks or ruptures quickly enough to respond to a release in a short period of time, or identify leak location, leading to additional product released to the environment that could have been reduced with the quicker notification achieved through the installation of additional sensors and hardware.

The OSFM assumed that approximately 127 pipelines would incur costs for retrofit or installation of leak detection technologies including LDS, CPM, and SCADA. An attempt was made to gather cost data associated with potential BAT leak detection technology. Unfortunately, this attempt proved exceptionally challenging, with vendors of systems reluctant to provide hardware and software costs for their leak detection systems. Costs are difficult for vendors to determine because there is often no way to accurately extrapolate costs to a pipeline without knowing its exact configuration, hence one of the reasons for the requirement of a risk analysis in the proposed regulations. Vendors also indicated that there are additional costs beyond initial purchase price, such as instrumentation and maintenance costs.<sup>9</sup>

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<sup>9</sup> Some vendors indicated that maintenance costs may be included in purchase price of LDS.

What LDS cost data the OSFM did obtain is provided here and should be considered broad assumptions. Excluding costs for additional instrumentation and maintenance, installed and tuned software-based volume balance and pressure analysis systems are available for less than \$200,000. Ultrasonic volume balance systems typically are more expensive and require vendor specific clamp-on flow meters ranging from \$35,000 to \$40,000 each. Real Time Transient Models (RTTM) run between \$200,000 and \$1,000,000 depending on pipeline configuration and complexity. External liquid-sensing and fiber optic cables are about \$5 to \$15 per foot installed, accompanying hardware and software is required for each cable segment and costs between \$10,000 and \$50,000. Costs for soil gas/tracer technologies are about \$15 per probe with probes installed every 20 feet, and additional costs for installing field stations every 2 miles at \$50,000, and a central computer with specialized software costing between \$10,000 and \$20,000. Acoustic emissions systems can be installed on a single pipeline segment of 200 to 300 feet for approximately \$5,000 to \$12,000, each additional segment requires a channel at an added cost of \$3,000.

For purposes of this SRIA, the OSFM assumed that operators would install RTTM as the leak detection method for all pipeline retrofits. RTTM was selected because of its high sensitivity compared to other LDS available on the market today. RTTM uses software and pipeline sensors to predict the size and location of leaks by comparing measured data for a segment of pipeline with predicted modeled conditions. The more instruments that accurately transmit data into the model, the higher the accuracy of and confidence of the model. If there is a deviation in the model, an alarm is sent to a pipeline controller or automatic shutoff system. Some operators have concerns that high sensitivity of an LDS, like that found in the RTTM, may lead to additional false alarms or missed leaks, and the loss of a critical instrument could require a system to shutdown. However, the advantages RTTM provides over other LDS include its ability to model flow, pressure, and temperature of hazardous liquids, while also accounting for complex physical pipeline characteristics, including length, diameter, and thickness of a pipeline. Additionally, the model can take into account product characteristics such as density and viscosity. The model can also be configured to distinguish between instrument errors and leaks. High costs associated with RTTM also afford a conservative cost approach to potential economic impacts. Assuming all 127 pipelines were retrofit with RTTM LDS, and the pipelines were of a complex nature incurring the higher end \$1,000,000 cost for procurement and installation, the total direct cost would be \$127,000,000. These costs would be expected to be incurred in the second and third year of regulation implementation. Due to the unlikely possibility that one LDS would be selected to fit the needs of half the pipelines needing retrofit, this cost impact should be considered to be the upper limit of possible expenses incurred for LDS and in reality will fall much lower.



It should be noted that it is up to the pipeline operator to establish pipeline-specific performance standards and weigh the costs and benefits of an LDS in meeting the proposed regulatory requirements. For the most part, retrofitting a pipeline with leak detection system technology can be accomplished with relative ease. However, there are additional costs accompanying the retrofit, including purchasing equipment, hardware, permitting, installation, testing, and maintaining additional equipment. These issues are explored in more detail below.

#### b. Automatic Shutoff Systems and Automatic Shutoff Valves

AB 864 requires operators to retrofit existing pipelines with BAT including, but not limited to automatic shutoff systems or remote controlled block valves, or any combination of these technologies. During normal operations, a computer based LDS and/or SCADA system collects and processes feedback and control signals from pressure sensors, flow meters, and other mechanical and electrical devices located at various points along a pipeline. These real-time signals are used by the SCADA system and control room operators to maintain operations. In emergency situations, these signals are used to detect deviations that may indicate a leak or rupture. After detecting a deviation that exceeds established limits, an analysis is conducted to determine if the deviation is within acceptable system performance or if there is an indication of a system failure such as a leak or rupture. Depending on an operator's procedures, in the event of a system failure, the decision to close block valves and isolate a line segment may only occur after positive evidence of a leak or rupture is confirmed based on field observations. Other operators may already implement what is required by AB 864, which is the consideration of an automatic shutoff system: an automated system not dependent upon human interaction capable of shutting down a pipeline system.

An automatic shutoff system would include Automatic Shutoff Valves (ASV). ASVs are valves equipped with some form of valve closure mechanism connected to sensors that monitor specific operating parameters and initiate valve closure, without human intervention, when a feedback signal exceeds a specified limit or set point. A variety of valves can be equipped as ASVs, for purposes of the SRIA, full-port ball valves are assumed to be the valve used for estimating costs of retrofit because they present little restriction to flow and the passage of in-line-inspection tools. Flow and pressure sensors are generally located adjacent to ASVs to monitor pipeline operations. However, additional sensors may be required between valves to provide redundant feedback signals. These signals are monitored by the SCADA system and used to detect abnormal operating conditions. Similar sensors would also be needed if remote controlled block valves are installed, as discussed below. Automatic shutoff systems would consider some form of microprocessor based programmable logic controller to

detect deviations consistent with a leak or rupture and initiate valve closure. Depending on the pipeline profile and SCADA system in place, additional sensors may need to be installed for an ASV to function properly on a pipeline.

Operators will consider automatic shutoff systems in the risk analysis submitted to the OSFM if a pipeline could impact an EESA. Whether an ASV or Remote Controlled Block Valve (RCBV) is appropriate on a pipeline depends on a list of factors contained in the proposed EESA regulations. Some of the considerations include: swiftness of leak detection and pipeline shutdown capabilities, the type of commodity carried, the rate of potential leakage, the volume that can be released, topography of the pipeline profiled, proximity of nearest response personnel, and benefits expected by reducing the spill size.

The cost to install an ASV on a pipeline can range significantly and is affected by factors such as, pipe size, location, sensors, and operating pressure to name a few. Based on OSFM research and discussion with vendors and contractors, the hardware costs alone for a single full port ball valve equipped with an automatic pneumatic actuator ranges from approximately \$6200 to \$187,000 on a 6-inch pipeline up to a 42-inch pipeline, respectively. Discussions with operators indicate that labor costs for installation of an ASV would not likely go higher than \$100,000 per valve. Recent studies have shown that operators estimate hardware and labor costs to install an ASV could range from \$100,000 up to \$1,000,000, with the high value being exceptionally rare.<sup>10</sup> While other studies provided operator estimations of ASV hardware and labor costs to install at a more conservative \$35,000 to \$500,000 per automatic valve installation.<sup>11</sup> Generally, these studies indicate increased labor costs with larger diameter pipes. Because of the varying estimates for hardware and labor, the OSFM is assuming a flat labor cost of \$100,000 per valve installation. This assumption is based on the fact that the vast majority of hazardous liquid pipelines that will likely be subject to the proposed regulations fall at or under 12 inches in diameter, which falls under the larger diameter valves that would incur the general trend of higher labor costs, while still being inclusive of the high estimate provided by California operators. All cost estimates are based off of a 12-inch diameter pipeline.

The hardware costs of a 12-inch ASV ball valve is approximately \$14,800 with an estimated installation cost of \$100,000; each installed ASV will cost an operator an estimated \$114,800. Any costs that an operator would incur purchasing and installing

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<sup>10</sup> Oak Ridge National Laboratory: Studies for the Requirements of Automatic and Remotely Controlled Shutoff Valves on Hazardous Liquids and Natural Gas Pipelines with Respect to Public and Environmental Safety, October 31, 2012. And informal discussions with operators.

<sup>11</sup> Government Accountability Office, Report to Congressional Committees, Pipeline Safety: Better Data and Guidance Needed to Improve Pipeline Operator Incident Response, January 2013, GAO-13-168.

an ASV are assumed to take place beginning in the second and third year of implementation of the proposed regulations. It is anticipated that 1.08 valves per pipeline mile will need to be installed based on the demonstration pipeline described below. Assuming that each of the 253 pipelines and 604 miles of pipeline that are expected to fall under the proposed regulations, a total of approximately 652 valves will need to be installed. If only ASVs are installed, the total direct cost including parts and labor to install only ASVs would be \$74,849,600.

It is extremely unlikely that operators will only install RCBVs and will likely install a combination of ASVs and RCBVs. For purposes of this SRIA, the OSFM assumed that half of the valves installed would be ASV and the other half RCBV, therefore it is expected that operators may incur \$37,424,800 in ASV retrofit costs to install 326 valves. These costs will likely be spread across the second and third year of the proposed regulations implementation.

#### c. Remote Controlled Block Valves

AB 864 requires operators to retrofit existing pipelines with BAT including, but not limited to automatic shutoff systems or remote controlled block valves, or any combination of these technologies. The full port ball valve used in the ASV section above is considered a block valve but could also be used as an RCBV depending on how the valve is operated. The difference between an ASV and an RCBV is described more fully below, but generally an RCBV must be activated by human interaction through a SCADA system, while an ASV operates without human interaction based on preset parameters.

There are a variety of valves that could be used as an RCBV, for example the proposed regulations include EFRDs which encompasses several types of flow restricting valves, including check valves. The term check valve means a valve that permits fluid to flow freely in one direction and contains a mechanism to automatically prevent flow in the other direction. An RCBV is any valve that is operated from a location remote from where the valve is installed and is usually operated by the SCADA system. The linkage between the pipeline control center and the RCBV may be by fiber optics, microwave, telephone line, or satellite. As mentioned above, these technologies and equipment are a key part of reducing the amount of product released following a spill. Once the leak detection technology on a pipeline identifies a leak, the automatic shutoff systems and operator activated RCBVs act to isolate a pipeline leak and reduce the volume of the release. Although RCBV closure swiftness is often effective in limiting the magnitude of potential consequences, no reduction in the probability of a release is conveyed. The direct costs assumed by the assessment will reflect the purchase and installation costs of an RCBV check valve.

Under current federal regulations for hazardous liquid pipelines, block valves must be installed at various locations, including but not limited to: on each side of a water crossing that is more than 100ft wide, on each side of a reservoir holding water for human consumption, at locations along a pipeline system that will minimize damage or pollution as appropriate for terrain in open country, offshore areas, or for populated areas. The proposed EESA Regulations are designed to work in a similar manner to federal HCA's but also seek to protect state waters and wildlife and environmentally and ecologically sensitive areas.

Most of the pipelines that will be subject to the requirements of the proposed regulations will likely already be equipped with some form of block valve, check valve, or EFRD. Some may be remotely controlled or manually operated, however for purposes of this SRIA, the OSFM is assuming that remotely controlled check valves will be installed on each of the 253 pipelines. In most cases, converting a manually operated check valve to an RCBV is relatively easy and can represent a significant cost savings. However, for cost projection purposes, the OSFM decided to estimate RCBV check valve costs assuming no manual check valves on a pipeline currently exist, or if check valves did exist, they would not be repurposed during a retrofit.

Labor costs of \$100,000 were used again for installation of an RCBV on an existing pipeline. Check valves equipped with a pneumatic actuator cost approximately \$4,900 to \$188,000, with the lower number representing a 6-inch diameter pipe and the higher number representing a 42-inch diameter pipe. The check valve costs are consistently lower than a ball valve until the pipe diameter reaches the 20-inch threshold. As noted above, because the majority of the pipelines in California fall at or under the 12-inch diameter, the RCBV check valve costs will be assumed for 12-inch diameter pipes as well. The hardware costs of a 12-inch RCBV check valve is approximately \$12,100 with an estimated installation cost of \$100,000; each installed RCBV will cost an operator an estimated \$112,100. Any costs that an operator would incur purchasing and installing an RCBV are assumed to take place beginning in the second and third year of implementation of the proposed regulations. It is anticipated that 1.08 valves per pipeline mile will need to be installed based on the demonstration pipeline described below. Assuming that each of the 253 pipelines and 604 miles of pipeline that are expected to fall under the proposed regulations, a total of approximately 652 valves will need to be installed. If only RCBVs are installed, the total direct cost including parts and labor to install only RCBVs would be \$73,089,200.

It is extremely unlikely that operators will only install RCBVs and will likely install a combination of ASVs and RCBVs. For purposes of this SRIA the OSFM assumed that half of the valves installed would be ASV and the other half RCBV, therefore it is

expected that operators may incur \$36,544,600 in RCBV retrofit costs to install 326 valves. These costs will likely be spread across the second and third year of implementation of the proposed regulations.

#### d. Construction Labor

Labor and construction costs to install valves has been included in ASV and RCBV cost estimates above. Retrofit installation per valve is expected to be \$100,000 with an anticipated 652 valves needed to be installed. When the labor costs are broken down separately, the total direct cost for labor is anticipated to be \$65,200,000 and is projected to be incurred in the second and third years of regulatory implementation. As will be shown below, separating the construction costs from the purchasing costs of ASV and RCBV produces a more accurate cost impact for the proposed regulation.

#### e. Permitting

Permitting costs to install ASV and RCBV are negligible because the pipelines are existing and are unlikely to require CEQA review or are exempt from the CEQA process. Discussions with local agency personnel revealed that any costs imposed on State or local agencies for permit review, where a permit is required, will likely be recoverable under a fee agreement between the agency and the operator. In most cases, a permit and/or fee may not be required or imposed unless the retrofit of an existing pipeline proposes a large amount of construction work or may incur environmental impacts. This determination would be made on a case-by-case basis. In the event a permit is required, permits must be reviewed by city or county permitting personnel which can cost up to \$225 per hour. Smaller projects can take 50-100 hours of permit review, while larger projects can take at least 1000 hours (typically for construction of a new pipeline).

For purposes of conservative cost estimation, it was assumed that 50% of the valve retrofits would require a permit as a smaller project. With an anticipated 326 valve retrofits expected to need permits, and review taking the high estimate of 100 hours for review at \$225 per hour, the total direct cost of permitting for operators is anticipated to be \$7,335,000. These costs will largely be incurred in the first year of implementation.

### 3. Testing and Training

The proposed EESA Regulations include testing and training requirements for appropriate personnel and BAT installed and operated on pipelines following retrofit. Some LDS are extremely simple to understand, and others are very difficult. For example, the concepts of sensitivity and reliability for certain LDS, such as RTTM, are hard to explain and could require extensive training to master. An LDS that is

misunderstood or ignored by operators is useless. Likewise, testing of installed software and training on hardware is equally important. An ASV or RCBV that is not tested or where an operator fails to understand how they operate is equally useless.

Operators are required to develop testing and training procedures to ensure the BAT and the personnel involved in operating pipelines subject to these proposed regulations are properly educated on, and understand how to respond to abnormal pipeline conditions. Additionally, the LDS, ASV, RCBV, EFRD or other BAT must be tested based on the timelines specified in the proposed regulations to ensure the technologies are operating as intended. Testing should be of the entire system; therefore, both the technology and control room operators should be tested.

The testing and training requirements in the proposed regulations are similar to those already required under federal regulations but with an expanded scope to cover AB 864 regulatory requirements. The similarity to the federal requirements will result in significant cost savings to operators to the point where only a nominal direct cost will be incurred. Therefore, it is assumed that no additional costs will be incurred by operators in testing and training.

Maintenance costs could also be considered part of testing costs, but for purposes of this SRIA are assumed to not impact operators. This assumption is based on the fact that many operators rely on suppliers of their LDS, SCADA, and/or CPM vendor to provide necessary maintenance. Similar assumptions were made for field equipment, such as for valves and actuators, because vendors will typically provide maintenance on supplied equipment. Therefore, costs for maintenance should remain unchanged.

These assumptions appear to be corroborated by the review of a recently proposed pipeline replacement in California that will be discussed below. The pipeline operator proposes a pipeline that is intended to meet the EESA Regulation requirements, although not formally reviewed or accepted by the OSFM at this time, including the installation of additional valves. However, the operator determined that no additional employees would be needed to operate the proposed pipeline upon completion compared to historic operations.

#### 4. Example of Direct Costs for Valves Using a Proposed Pipeline

Because no one pipeline is the same, it is difficult to identify what BAT will be chosen and how it will be applied to a particular pipeline. The application of BAT could affect the type and design of LDS, the number and type of valves installed, and the potential reduction in size of spill. To illustrate the generally anticipated direct costs to operators for valve retrofit, an example pipeline is used below as a demonstration. The pipeline is

for a proposed newly constructed pipeline, but the OSFM assumed retrofit costs would apply for purposes of this SRIA because the majority of pipelines will incur costs for retrofit, not new construction. The results are then extrapolated across California and have been used as the basis for the estimated number of valves per mile used in the anticipated direct costs assumed above.

In August 2017, Plains Pipeline, L.P. (Plains) submitted plans to potentially replace Line 901 and Line 903. Line 901 is the pipeline that caused the May 19, 2015 spill at Refugio Beach in Santa Barbara County. The materials submitted by Plains are being reviewed by Santa Barbara County for the proposed project and are only preliminary. However, the proposed project design and construction must conform to BAT requirements in adherence with the requirements of AB 864 and the proposed EESA Regulations, as well as all local, State, and federal requirements for pipeline design and construction if approved. In developing this direct cost example, the OSFM reviewed only the publicly available documents submitted by Plains to Santa Barbara County. This demonstration should not be construed as meeting the requirements of AB 864 and is merely an illustration of what is possible based on an individual pipeline operator's projection of BAT needed to meet the proposed EESA Regulations.

The proposed project will be the construction of an entirely new pipeline built within the existing easement of the current pipelines. Therefore, the pipeline profiles should be similar to the existing pipeline, providing an apples to apples comparison. The direct costs for constructing new pipelines and installing BAT is typically less than retrofitting existing pipelines. To account for this difference, the OSFM used the anticipated costs for retrofit of BAT across the proposed project and is assessing the costs based on an existing line being retrofitted. The proposed pipeline will be equipped with SCADA that will gather data on flow rate, temperature, and pressure. It also appears that fiber optic lines may be installed in addition to remote communication equipment, emergency battery systems, back-up generators, and/or solar panels. It is unclear what type of LDS the proposed pipeline will be equipped with, but following the assumptions above, it is assumed that RTTM will be chosen as the LDS incurring \$1,000,000 in direct costs. The direct costs associated with ASV and RCBV are discussed in detail below.

According to maps and other materials submitted to Santa Barbara County, Line 901 and a portion of Line 903 fall within the coastal zone or are considered part of the Gaviota Coast totaling 16.6 miles.<sup>12</sup> As originally constructed, this section of pipeline

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<sup>12</sup> There is a discrepancy between information identifying the proposed pipelines as only having 14.6 pipe line miles in California Coastal Zone and maps identifying the pipe line mileage as 16.6 miles for the Gaviota Coast. The OSFM elected to use the 16.6 mile measurement as it likely was more inclusive of potential pipeline mileage subject to the proposed regulations.

was equipped with 6 valves, which were likely a combination of check and RCBV valves. The proposed project now includes 18 valves for the same length of pipe and does not provide a description regarding the configuration or design of the 12 "new" valves. The proposed pipeline material includes the general description that all valves on the pipeline will be control valves and either motor operated valves or check valves. Motor operated valves can also be considered RCBV, therefore the OSFM has assumed that Plains proposed pipeline will use RCBV check valves.

Plains plans on reusing 6 existing valves which will provide cost savings. This approach is anticipated to be used by operators in achieving compliance with the proposed regulations, but for purposes of this example, the assumption will be made that all 18 valves will be new and will require installation costs commensurate with a pipeline retrofit. RCBV costs including installation, as described above, is approximately \$112,100 per valve retrofit. The total direct cost to Plains in this example would be approximately \$2,017,800 (18 x \$112,100). This represents the lowest anticipated cost, as AB 864 requires the consideration of Automatic Shutoff Systems including ASVs. If Plains installed all ASVs, the cost climbs to roughly \$2,066,400 (18 x \$114,800). Either RCBV or ASV installation would also require an additional expenditure of \$1,000,000 for an RTTM leak detection system. Though there is not much difference in total cost, pipeline valve costs would likely fall somewhere between the two projections since a combination of the two technologies would likely be used as opposed to a homogeneous approach.

Assuming the proposed pipeline project were found acceptable to the OSFM under the regulatory requirements, a number of interesting observations regarding valves can be made. By comparing the number of existing valves (6) to the number of anticipated valves (18) a rough estimate of ratios and valves per mile can be surmised. These estimates are what Plains projects will meet the requirements of AB 864 and the proposed regulations. This does not necessarily mean that Plains' projection will actually meet the requirements, since the OSFM has not reviewed all the proposed pipeline materials nor formally adopted the proposed EESA regulations. Looking at ratios first, the proposed pipeline represents a 3:1 ratio of proposed valves to existing valves; or a 2:1 ratio of new valves installed for every one existing valve. Alternatively, considering the number of proposed valves on a per-mile basis, it is anticipated that approximately 1.08 valves will be installed per-mile. Both the ratio and valves per-mile observations indicate that operators could incur significant costs solely for valve retrofit.

It should be kept in mind that the proposed Plains replacement project is not indicative of all pipelines in California, even if it is assumed the proposed replacement meets the requirements of the proposed regulations. For example, pipelines in urban



environments may not need as many valves. And in some cases, the valve per mile calculation assumed will not work for shorter length pipelines. However, an assumption had to be made to determine potential economic impacts in measurable terms that was not available without detailed risk analysis on all pipelines in California.

#### 5. Total Predicted Direct Cost To California Operators

There is no one formula for extrapolating retrofit costs universally across California due to unique geographic and operational impacts and other factors without making assumptions. However, if the potential number of valves required per-mile on the proposed Plains line is extrapolated across California it is anticipated operators will need to install approximately 652 new valves. If only RCBVs are installed, operators will incur \$73,089,200 in direct costs. If only ASVs are installed, operators will incur \$74,849,600 in direct costs.<sup>13</sup> Actual direct costs will likely be lower than the high dollar value because operators may install a combination of valves and not solely rely on ASVs. The OSFM assumed that a combination of half ASV and half RCBV are expected to be used, which brings the total direct cost for ASV to \$37,424,800 and for RCBV to \$36,544,600. It is assumed that an additional \$127,000,000 will be incurred for installation of RTTM leak detection systems across all pipelines. When including costs for risk analysis (\$11,425,000) and permitting (\$7,335,000) the total direct cost to California operators is estimated to be \$219,729,400. The majority of these costs would likely be incurred in the second and third year of regulatory implementation.

#### IV. Economic Impacts

##### A. Baseline Information

The baseline information provides an understanding of the current standards that operators must follow. The baseline used for this analysis assumes that operators would continue to comply with federal and State requirements and continue business-as-usual (BAU), while complying with orders issued by the OSFM prior to the enactment of the proposed regulations, and carry out any compliance related matters as required absent the proposed regulations.

##### B. Methodology for Determining Economic Impacts

The OSFM gathered the direct costs to industry as described above and utilized the Regional Input-Output Modeling System II (RIMS II) to estimate indirect costs and economic impacts to the California economy. RIMS II is a computational general equilibrium model developed by the United States Bureau of Economic Analysis (BEA) that generates year-by-year estimates based on total regional effects of a policy or set

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<sup>13</sup> A direct cost estimate based on the ratio of existing valves to the number of anticipated retrofit valves could not be produced because the OSFM does not track the number of valves on existing pipelines.

of policies.<sup>14</sup> The model is designed to be regionally specific and relies on a set of multipliers applied to output that occurs across affected industries delivered to final demand. RIMS II Type I multipliers were used in the analysis and assessment.<sup>15</sup> Primary and secondary industries that are expected to be affected by the proposed regulations and their corresponding North American Industry Classification System (NAICS) numbers are shown below:

**Table 1: Primary and Secondary Industry NAICS Codes<sup>16</sup>**

<b>Regulatory Function</b>	<b>NAICS #</b>	<b>NAICS Industry</b>
Risk Analysis	541330	Engineering Services
Leak Detection Systems	420000	Industrial Machinery and Equipment Merchant Wholesalers
Automatic Shutoff Valves	420000	Industrial Machinery and Equipment Merchant Wholesalers
Remote Control Block Valves	420000	Industrial Machinery and Equipment Merchant Wholesalers
Construction Labor	2332C0	Oil and Gas Pipeline and Related Structures Construction – Nonresidential Structures
Permitting	5416A0	Environmental and Other Technical Consulting Services

The RIMS II multipliers are industry-specific and include businesses located outside California. The estimated economic impact is likely affected by the geographic area used to develop the multipliers and applying California specific multipliers may result in higher or lower numbers.

### C. Inputs of the Assessment

The cost of compliance with the proposed EESA Regulations will vary depending on the design, operation, and profile of characteristics of the 457 pipelines impacted by AB 864. The cost estimates take into consideration EESA location, protection of state waters and wildlife, the California Coastal Zone, pipeline location, pipeline proximity to EESAs, BAT, OSFM records, and institutional knowledge and experience. For example, there are 726 hazardous liquid pipelines that are jurisdictional to the OSFM in California totaling approximately 6,500 miles. Of the 457 pipelines impacted by the proposed regulations, roughly 253 pipelines are located in or near the Coastal Zone that could impact an EESA if a release occurs. Those 253 pipelines are anticipated to need some form of retrofit with BAT including LDS, ASV, or RCBV, as discussed above.

<sup>14</sup> The BEA does not endorse any resulting estimates and/or conclusions reached in this economic analysis or the economic impact of a proposed change in an area.

<sup>15</sup> Multipliers account only for interindustry effects (direct and indirect) of a final-demand change. BEA RIMS II Guidelines, p. G-3.

<sup>16</sup> NAICS industry codes used from 2007 industry list.

Details regarding the specific pipeline profiles, current technologies utilized, and risks posed to EESAs will not be fully known until required risk analyses are submitted and reviewed by OSFM. Every attempt was made to account for the substantial variation in costs that the OSFM believes will be associated with bringing a pipeline into compliance with the proposed regulations.

In order to estimate the economic impacts associated with the proposed regulations, the OSFM created a list of likely risk evaluation tools, hardware (valves and components), testing, training, and reporting activities that would be necessary to comply with AB 864 and the proposed EESA Regulations. The OSFM developed the cost estimates from information provided by operators on the discussion draft regulations and surveyed all the operators in the State to solicit estimated costs for the potential requirements of the proposed regulations. The costs for hardware and systems were provided by industry suppliers, as were installation costs. The costs estimated by the operators and industry were reviewed and considered by the OSFM, which were then compared to other similarly situated economic impact studies conducted by State and federal agencies. An average of estimated costs was used for the purpose of these calculations. To capture a higher range of possible costs, this analysis presumes that operators will be retrofitting a pipeline with a diameter of 12 inches. Hardware costs (such as valves and equipment to operate valves) are anticipated to be a large expense for compliance with the proposed regulations, which are driven by pipeline diameter. The diameter of the pipeline was chosen because the majority of pipelines anticipated to fall under the proposed regulations are either 12 inches in diameter or less. This analysis assumes that all 253 pipelines in the Coastal Zone will require retrofit with ASVs or RCBVs or a combination of those technologies, though it is possible that some of these pipelines may already meet the requirements of AB 864 and the proposed regulations. Roughly half of the 253 pipelines were also assumed to need an LDS installed. These assumptions ensure that the cost estimates are inclusive of a higher range of potential expenses.

Compliance costs will be heavily impacted by the risk analysis operators are required to submit to the OSFM. The risk analysis must consider a variety of factors contained in the proposed regulations and operators must select a potential application of BAT, based on the risk analysis, to meet the statutory requirement of reducing the volume of a release in the event of a pipeline spill. This analysis assumes existing pipelines will be brought in to compliance within 30 months of formal adoption, consistent with the requirements in the AB 864 legislation.<sup>17</sup>

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<sup>17</sup> This time frame could be shorter or longer during implementation. If a longer time frame is needed the operator must demonstrate a showing of good cause subject to review by the OSFM.

The cost estimates for the proposed regulations were calculated by multiplying the direct costs for regulatory requirements by the number of pipelines that are anticipated to be affected. When pipeline mileage served as a better assumed cost projection tool it was used. The analysis assumes that existing pipelines impacted by the regulations will be required to meet the compliance requirements regardless of when a pipeline was constructed or whether a pipeline may already be equipped with BAT. Because these pipelines were included in the cost estimates, it is likely that the results are an overestimate of the total cost of the regulations.

To estimate the economic impacts of the proposed EESA Regulations, the OSFM gathered the potential direct costs and applied those costs to a proposed pipeline example above. The costs were then extrapolated across all pipelines based on the number of new valves or valves per pipeline mile that will likely be needed to meet the requirements of the proposed EESA regulations as anticipated by a pipeline operator. As indicated above, the potential direct costs to California Businesses can be identified by the following categories:

1. Risk Analysis and Implementation Plans
2. Use of Best Available Technology
  - a. Leak Detection Systems and Technologies: LDS, CPM, and SCADA
  - b. Automatic Shutoff Systems and Automatic Shutoff Valves
  - c. Remote Controlled Block Valves
  - d. Construction Labor
  - e. Permitting
3. Testing and Training
4. Example of Direct Costs for Valves Using a Proposed Pipeline

#### D. Assumptions and Limitations

Assumptions of the total economic impacts of changes to California businesses, gross state product, employment, personal income, and other economic variables are limited by the BEA RIMS II data. The RIMS II multipliers are industry specific and include businesses located outside California. The estimated impact is an approximation that may include the non-regional nature of the multipliers. If multipliers were regionally focused on businesses located solely in California, this analysis may have produced higher or lower numbers.

The economic impact measured through the RIMS II model does not produce a final demand number. Final demand is defined as purchases by customers outside the region; investment in new buildings, equipment, software, purchases by the government, and purchases by households. The use of RIMS II requires that expenses

be treated as investment spending due to a regulatory burden. However, the RIMS II model cannot measure the impact of a regulatory burden that changes the cost structure of the affected industry because RIMS II is a static model.

The benefits associated with the indirect impacts are measured by avoidance of risk to related harmful outcomes.

#### E. Indirect Costs

Indirect costs reflecting the total economic impact on output assessments per RIMS II data are shown in Appendix B (Economic Input to Output). These impacts are measurements of RIMS II data modeling that evaluates the potential economic impacts of the proposed regulations compared to the current regulatory scheme that does not include use of BAT and protection of EESAs. As the table indicates, an estimated economic impact to output of \$306 million is projected.

The results of the indirect cost assessment is discussed below and represents the OSFM's attempt to account for the complex economic impacts that the proposed regulations will have on California. Hazardous liquid pipeline operator expenditures will have both primary and secondary economic impacts resulting in increased economic output across California. The regional output multipliers from RIMS II incorporate data about inter-industry relationships and estimate the diminishing returns of new rounds of spending within the region stemming from the economic activity. The proposed regulations will result in purchase of goods and services from businesses that support the regulated community. The anticipated expenses include valves and related hardware and software necessary to operate a hazardous liquid pipeline consistent with the proposed regulations. These expenses will work through the economy producing subsequent economic impacts as additional transactions take place throughout the regional economy.

#### F. Results of the Assessment

##### 1. California Employment Impacts

The proposed EESA regulations are expected to result in additional jobs in employment sectors, such as construction, manufacturing, testing, and maintenance. Qualified and skilled pipeline construction jobs are expected to be in higher demand to conduct the appropriate retrofit of pipelines. The economic sector most likely to feel this impact is the oil and gas industry. Additional jobs will likely increase following the initial implementation of the proposed EESA Regulations. It is anticipated that some permanent jobs will be created for the continued operation, maintenance, and testing requirements of the proposed regulations. Appendix C (Employment Impact) provides estimates for the number of jobs created as a result of the anticipated costs incurred by the regulated community, with a total of 1885 estimated jobs created in the first three years of regulatory implementation.

## 2. Exports and Imports

It is anticipated that the proposed regulations will have little to no impact on the export and import of hazardous liquids in California following implementation. The proposed regulations will require pipelines to be retrofit with BAT, which may include taking a pipeline out of service while retrofit and appropriate testing is conducted before restarting the pipeline. However, the short-term disruptions are not anticipated to cause operators to import or export less hazardous liquids than under the current regulatory scheme.

Following the Refugio Beach release, crude oil shipments from the only pipelines in the Santa Barbara area capable of delivering product were ordered shut down until rigorous compliance actions were completed. Those pipelines have not returned to service. Some sources have cited the pipelines out of service status as a contributing factor behind the bankruptcy of one operator, Venoco, and the decommissioning of an associated oil platform. This scenario is highly unlikely to occur again, and industry is planning on continuing operations following the restart or replacement of the Plains pipelines located in Santa Barbara County. The existing platform leases and potential production revenues are too sizeable to abandon the sunk cost of fixed assets in pipelines while demand for oil remains consistent. For example, California's off-shore oil and gas production shipped an average of \$26 billion per year in product as of 2000. In 2005, offshore oil production in California accounted for 36% of all oil production from State lands in California. Interestingly, in 2000 California only produced one-half of the crude oil that it consumed with the other half being imported from other states and countries via ship and rail. The demand for continued oil production in California is unlikely to be impacted by the proposed regulations and it is expected that exports and imports will remain constant due to the supply and demand needs of the State.

Additional benefits can be found in the proposed EESA Regulations' purpose, to reduce the size of a spill in the event of a release. The requirements proposed in the regulations would enhance the safety of intrastate pipelines operated in California. With the added protections, in the event of a future spill, disruptions to pipeline service could be minimized resulting in continued operations with less interruption. Moreover, the proposed regulations, had they been in place at the time of the Refugio Beach spill, could have saved an operator from filing bankruptcy and the decommissioning of an oil platform and the resulting loss of production and State and local revenue.

It should be noted that the proposed regulations are applicable to intrastate hazardous liquid pipelines. Interstate pipelines, pipelines that ship product across state and federal lands or waters, are regulated by the Federal Department of Transportation's - Pipeline

and Hazardous Materials Safety Administration (PHMSA). Because the proposed regulations do not impose requirements on interstate pipelines, the OSFM assumed that no impact to interstate pipeline imports and exports would result.

### 3. Creation or Elimination of Jobs

The proposed EESA Regulations will have an impact on the creation of jobs in California in the short and long term. Using the RIMS II modeling data, the proposed regulations should create an estimated 217 jobs in the first year, with increasing job creation in subsequent years as depicted in the table in Appendix C. Appendix C shows the number of jobs created from each NAICS specific industry code that was used to generate the estimated total number of 1885 jobs created over the first three years of implementation. It should be noted that RIMS II does not have the capability to determine whether the jobs created are full-time or part-time positions. Generally speaking, the oil industry is expected to see an initial increase in overall employment in year one with larger increases in the subsequent two years.

### 4. Impacts on Gross State Product

The proposed regulations will have a relatively minor impact on the gross state product (GSP). GSP includes the value of labor, depreciation, income taxes or government subsidies, and profit. The table in Appendix D shows the estimated annual impact of \$191 million on the State's roughly \$2.6 trillion GSP.<sup>18</sup> Hazardous liquid pipelines represent a small portion of the overall oil production industry in California. The majority of costs associated with the proposed regulations will be incurred in the first three years of implementation and the on-going costs are considered to be nominal and should have a negligible impact on GSP. The table was developed using RIMS II multipliers over the first three years of implementation from 2019 through 2021.

### 5. Creation and Elimination of Businesses

It is anticipated that the proposed regulations will not significantly impact the creation or elimination of businesses in California. Labor, hardware, and software required to meet compliance requirements in the proposed regulations is typically highly specialized and requires extensive training. Hazardous liquid pipeline construction and retrofit requires personnel to meet regulatory qualifications that could act as a barrier to entry for a new business. However, due to the anticipated increase in demand for qualified and personnel it is likely that some new businesses will enter the industry to support pipeline operators in achieving regulatory compliance.

Those businesses that are currently operating in California that employ the specialized personnel required may experience growth in overall business. Alternatively, some

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<sup>18</sup> [http://www.dof.ca.gov/Forecasting/Economics/Indicators/Gross\\_State\\_Product/](http://www.dof.ca.gov/Forecasting/Economics/Indicators/Gross_State_Product/)

members of industry have indicated that where labor resources for retrofit are scarce, operators may turn to qualified individuals from out of State to install required BAT. Bringing business from out of State may not necessarily have a negative impact and could be beneficial because it creates more competition delivering economic efficiencies. In some cases, bringing in qualified personnel from out of State may be necessary to meet labor and timeline requirements associated with the proposed regulations.

While California Government Code section 11342.610 excludes "a petroleum producer, a natural gas producer, a refiner, or a pipeline" from evaluation consideration as a small business, the OSFM attempted to assess small business impacts. A survey was circulated to all pipeline operators in the State requesting data that would have assisted in evaluating impacts to all businesses, including small businesses. However, due to the minimal number of responses, no meaningful assessment of impact on small business could be determined through industry self-reporting. With the data found by the OSFM through alternative sources and research, it was determined that no alternative identified would lessen the economic impact, if any, on small businesses and still allow the OSFM to effectively implement the legislation.

#### 6. Competitive Advantage or Disadvantage

It is unlikely that the proposed regulations will act as a disadvantage to industry in California because the intrastate hazardous liquid pipeline industry is captive. If an outside business wishes to enter the California market, it must comply with the regulatory requirements, placing industry on even footing. A small number of pipelines in California are classified as interstate pipelines and will not be impacted by the proposed regulations, which may place operators of those pipelines at a slight advantage. However, such an advantage is limited to situations where an interstate pipeline ships product directly out of State. Because many interstate pipelines distribute product through intrastate lines for processing and delivery, it is anticipated that interstate operators will absorb some costs for distribution through intrastate pipelines. These costs are expected to be short-term and may place California industry at an advantage as discussed more fully below.

The proposed regulations may act as an advantage for California industry if pipeline operators own interstate pipelines or operate intrastate pipelines in other states throughout the Country. Although it is only preliminary, PHMSA is in the process of drafting regulations required by statute to state that the Great Lakes, coastal beaches, and marine coastal waters are Unusually Sensitive Areas of ecological resources for



purposes of determining whether a pipeline is in an HCA.<sup>19</sup> The proposed EESA Regulations are similar to ecological HCAs, but include species unique to California. It is possible that the proposed PHMSA regulations will require similar evaluation of pipelines that could impact HCAs for interstate pipelines, which would also impact requirements on intrastate pipelines outside of California. California industry and operators would be uniquely situated to understand and implement more protective requirements and implement the PHMSA requirements more effectively than industry outside of California based on their prior regulatory implementation. Placing them at an advantage in the national pipeline transportation market.

#### 7. Increase or Decrease of Investment in California

Discussions with stakeholders, industry, other agencies, and advocacy groups contributed to the proposed regulations. After consideration of this input, the draft regulations reflect a fair, enforceable, and effective approach to reducing spill size and a corresponding reduction in risks to hazardous liquid pipeline operators. An initial expense by operators will result in an increase in investment on hardware, equipment, and labor. Though the increase in investment will have a nominal impact on California's \$2.6 trillion annual economy, there is no indication that the proposed regulations will negatively affect investment in California.

#### 8. Incentives for Innovation

The proposed regulation is guided by one of the primary purposes of AB 864, using BAT to achieve spill volume reduction. BAT is broadly defined as technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world. The universe of possible applications of BAT is broad, which works in operators favor, as no single pipeline is the same and no single technology may be BAT for all applications. This flexibility affords operators and industry the opportunity to innovate and demonstrate combinations of technologies that will best achieve spill volume reduction. It is anticipated that operators will meet the BAT requirements through improving, modifying, supplementing, adapting, or retrofitting existing systems. However, in some cases technologies currently existing on pipelines may not represent BAT even if the foregoing efforts are taken by an operator. The flexibility in achieving compliance will act as a driver of innovation at implementation and going forward because the proposed regulations require operators to review installed and retrofit BAT every five years.

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<sup>19</sup> <https://www.regulations.gov/docket?D=PHMSA-2017-0094>

## 9. Costs Avoided

The Refugio Beach incident demonstrates the size and impact an oil spill can have on costs to businesses, the public, and the environment. In purely economic terms pipeline spills in California's Coastal Zone have cost operators \$17 million from 2010 to 2016 excluding NRDAs and the Refugio Beach spill. The Refugio Beach spill cleanup costs are still being determined but are estimated at \$335 million. Incidents the size of the Refugio Beach spill are a rare occurrence, however it serves as a reminder that technologies and practices that have been historically used may not represent BAT today. The proposed regulations seek to reduce spill size and enhance protection of our environment which may require industry to incur additional compliance costs, but will similarly reduce harm resulting in savings to industry, businesses, and individual Californians. The reduction in harm can be considered the cost avoided.

For example, if Plains installed all ASVs and an RTTM leak detection system as assumed in the demonstration section above, the cost would be roughly \$3 million. It is difficult to calculate the reduction in spill volume, and ASVs and LDS alone would not have prevented the spill, but it is presumed that a reduction in spill volume would have resulted nonetheless. It would only seem prudent to avoid \$335 million in estimated costs by investing \$3 million in a system designed to reduce spill volume. Additional costs avoided include bankrupt companies; supply disruption; litigation costs; environmental restoration costs; private claims; dedication of resources by State, federal, and local agencies; expenditure of tax payer funds; lost revenue to State and local coffers; and lost jobs, to name a few.

### G. Summary and Results of the Economic Impact Assessment

The total direct costs for the first three years of implementation of the proposed regulations is \$220 million and the total economic impact to output is roughly \$306 million. It is estimated that an additional 1885 jobs will be created in the first three years with an impact of approximately \$191 million to GSP during that same time frame.

The proposed EESA Regulation economic impact analysis was analyzed using conservative costs and any impacts projected should be viewed in the context of the assumptions used throughout this document. The costs represented here should be considered inclusive and may represent an upper bound of anticipated impacts. While these assumptions may affect the estimated impacts, they were necessary to complete the analysis.

If enacted, the proposed regulations may affect the creation or elimination of jobs within the State of California, will likely not affect the creation or elimination of existing businesses, will likely result in additional work for California businesses servicing the oil

industry, and will likely not affect the ability of California businesses to compete with businesses outside of the State.

## V. Alternatives

A discussion of alternatives to the proposed regulations are addressed below. The alternatives further illustrate the economic impacts as a result of changes in the regulatory scheme. Associated benefits and disadvantages of the alternatives will also be discussed where relevant. The alternatives operate under the same business as usual assumption adopted above, assuming that industry would continue to comply with existing regulatory requirements absent the adoption of the proposed EESA Regulations. The OSFM solicited input from the public and stakeholders for alternative approaches to the draft regulations proposed at the public workshops. The input provided from the public workshops along with staff expertise and historical information were used to craft the following alternatives.

### A. Alternative 1: Require Only Automatic Shutoff Valves

This alternative assumes that all 652 of the anticipated valves to be installed on hazardous liquid pipelines are required to install ASV to meet the BAT requirements of the proposed regulations. In contrast, the proposed regulations will allow operators to combine multiple forms of BAT to meet regulatory compliance, including the use of either or both ASV and remote control block valves.

#### 1. Benefits

The goal of automatic shutoff valves is to provide timely automatic response to a potential pipeline release. In general, some operators already employ the use of automatic shutoff valves based on an existing risk analysis or preference in pipeline operations. Some ASVs can be programmed to automatically close in the event of abnormal pipeline operation, power outages, or where communications are lost with the control room. A pipeline equipped with ASVs would not require a pipeline operator to identify an abnormal operating condition and then respond by closing valves remotely or manually, resulting in a potential time savings and volume reduction in the event of a spill.

#### 2. Costs

As discussed briefly above, the installation of ASV is more expensive than installing RCBV, although the difference is relatively small, amounting to an increase of \$880,200 split evenly across the second and third year of regulatory implementation.

### Alternative 1: Direct Costs Comparison

	2019	2020	2021
Alternative 1	\$18,760,000	\$100,924,800	\$100,924,800
Proposed EESA Regulation	\$18,760,000	\$100,484,700	\$100,484,700
Increased Cost Under Alternative 1	\$0	\$440,100	\$440,100

### 3. Economic Impacts

Because the direct costs for this alternative are so small any impacts to final demand output, employment, or GSP would be negligible.

### 4. Reason For Rejecting

Even though Alternative 1 represents only a nominal increase in direct costs, it fails to address the possibility that all pipelines are different. Nor does it address the pipeline design factors that should be evaluated on a case-by-case basis in risk analyses. The risk analysis should be conducted, evaluated, and then appropriate BAT should be determined based on the unique characteristics of each pipeline. If the proposed regulations required only ASVs to be installed the flexibility needed to meet BAT requirements would be effectively frustrated.

Additional consideration should be given to the potential drawbacks of fully automatic systems. Automatic shutoff systems including ASVs, when improperly operated or maintained, have resulted in automatic shutoff of pipelines where no shutdown is warranted. In the best-case scenario, a pipeline is shut down and an operator incurs costs to check and then restart the line after confirming there are no leaks. However, other scenarios have occurred where ASVs are closed out of sequence with control parameters that caused pipeline ruptures. It is axiomatic that the purpose behind an ASV is to reduce spill volume yet in some rare instances can cause a pipeline rupture.

Requiring ASVs across all pipelines without consideration to the specific pipeline profile could be counterproductive from the risk-based approach utilized in the proposed EESA Regulations. Some representatives for valve wholesalers and LDS companies have indicated that issues with ASVs improperly closing are rarer than pipeline operators would indicate. However, a measured approach based on risk analyses and proper application of BAT affords the necessary flexibility to achieve compliance while considering the full range of advantages and disadvantages regarding valve options.

### B. Alternative 2: Require All Pipelines To Use RTTM

Alternative 2 focuses on leak detection systems and requiring all 253 pipelines located in or near the coastal zone to be equipped with Real Time Transient Monitoring. This alternative is similar to one proposed from the public workshops, where it was

suggested that all pipelines in California, in addition to pipelines located in the coastal zone, be equipped with BAT. This more narrowly tailored alternative was examined instead of the proposed workshop alternative because requiring BAT on all pipelines in California appeared to be outside of the scope of AB 864.

### 1. Benefits

Compared to the proposed EESA Regulations, where only 127 pipelines in or near the coastal zone were assumed to need RTTM, Alternative 2 would ensure that all 253 pipelines in or near the coastal zone would be equipped with RTTM leak detection systems. It is unknown what type of existing leak detection systems are installed, if any, on pipelines in the coastal zone of California. No current requirement exists that a pipeline be equipped with leak detection systems, save for pipelines that could impact HCAs. Under this alternative, all pipelines in or near the coastal zone would have what is considered a highly effective and sensitive leak detection systems installed, and the installations would provide uniformity across industry.

### 2. Costs

As indicated in the table below the direct costs to industry under this alternative would be significantly higher than under the proposed EESA Regulations, requiring industry to incur an additional \$126,500,000.

**Alternative 2: Direct Costs Comparison For RTTM**

	2019	2020	2021
Alternative 2	\$0	\$126,500,000	\$126,500,000
Proposed EESA Regulation	\$0	\$63,500,000	\$63,500,000
Increased Cost Under Alternative 2	\$0	\$63,000,000	\$63,000,000

### 3. Economic Impacts

When the impacts from the additional direct cost increase for installing RTTM leak detection systems is applied to the corresponding RIMS II multipliers, an increase in output, jobs, and GSP occurs. The table below represents the increased economic impact of Alternative 2 compared to leak detection systems as assumed in the proposed regulations analyzed in the SRIA above and found in the Appendices below. This data represents the additional impacts separate from the potential impacts under the assumptions made for the proposed EESA Regulations on a per year basis.

**Alternative 2: Increased Impact To Output, Jobs, And GSP**

Impact	2019	2020	2021
Output	\$0	\$87,368,700	\$87,368,700
Jobs	0	448	448
GSP	0	\$57,298,500	\$57,298,500

The Table below represents the potential economic impact based on the assumptions made under the proposed EESA Regulations on a per year basis.

**Assumed Impact Under Proposed EESA Regulations: To Output, Jobs, And GSP**

Impact	2019	2020	2021
Output	\$0	\$88,061,800	\$88,061,800
Jobs	0	452	452
GSP	0	\$57,753,250	\$57,753,250

The table below represents the total impact to output, jobs, and GSP when the two immediately preceding tables are added together. The additional impacts of Alternative 2 are added to the impacts under the assumptions made for the proposed EESA Regulations on a per year basis.

**Alternative 2: Total Impact To Output, Jobs, And GSP**

Impact	2019	2020	2021
Output	\$0	\$175,430,500	\$175,430,500
Jobs	0	900	900
GSP	0	\$115,051,750	\$115,051,750

The economic impacts from Alternative 2 would increase total output to \$350,861,000, while adding 1800 jobs, and increasing GSP by \$230,103,500. This data represents roughly a two-fold increase of the same data under the proposed EESA Regulations for leak detection systems that can be found in the appendices below.

**4. Reason For Rejecting**

Leak detection systems are an important component for monitoring pipeline operations and promptly detecting and responding to leaks or ruptures. However, requiring one specific form of leak detection, such as RTTM, may not represent BAT for all pipelines in the coastal zone. In some cases, pipelines may already be equipped with a LDS that would meet BAT requirements, or could easily achieve BAT standards through retrofit of existing systems. Additionally, shorter distance pipelines with a less complex pipeline profile may not need a system like RTTM because an alternative LDS could meet BAT requirements. Ultimately, the flexibility allowed in the AB 864 legislation is imperative to

researching, retrofitting, and/or installing technologies, including LDS, that meet BAT based on a pipeline by pipeline risk analysis approach. By mandating RTTM as a required form of technology, regardless of pipeline specific risks, the regulation could be counterproductive and be a poor application to specific pipelines.

## VI. Fiscal Impacts

### A. Local Government

Hazardous liquid pipeline safety laws are governed by State and Federal laws and regulations. It is not anticipated that the proposed EESA Regulations will have a fiscal impact on local government. In some instances, local governments may have to process permit applications for construction related to pipeline retrofits. However, as discussed above, any permit costs will likely be covered by pipeline operators.

### B. CAL FIRE and OSFM

With the assistance of the Legislature and the Governor's office, CAL FIRE and the OSFM received funding for additional personnel and resources to meet the anticipated needs and increased responsibilities associated with AB 864.

### C. Other State Agencies

It is anticipated that some indirect fiscal impacts to other State agencies may occur following implementation of the regulations. The proposed regulations do not impose requirements on other State agencies, but operators may utilize resources within other agencies to seek compliance, thereby incurring an indirect fiscal impact.

For example, the *California Public Utilities Commission* (CPUC) sets and adjusts tariff rates on pipeline operators. As was discussed briefly above, pipeline operators may seek to increase tariff rates to compensate for increased pipeline operating costs. For this to occur, operators must seek review and approval from the CPUC.

Additional impacts may affect the *Division of Occupational Safety and Health Administration* (Cal/OSHA), who may review construction and retrofit plans for worker safety.

The *Office of Oil Spill Prevention and Response* (OSPR) maintains and reviews spill response plans submitted by operators. Following retrofit, the spill response plans may need to be updated by operators and reviewed by OSPR. It is unclear if this will impact OSPR because spill response plans are already reviewed on a set schedule of a period of years, but an impact could be possible.

It is unknown what the size of a possible impact to CPUC, Cal/OSHA, or OSPR would be or how to quantify such impacts.

## **VII. Conclusion**

This economic analysis should be viewed based on the assumptions used to develop the estimated impacts and the conservative approach to include costs that may not impact all operators. Such assumptions will affect estimates, but were necessary to complete the analysis while considering possible costs.

The OSFM has determined that the proposed regulations are the most cost-effective solution to meeting the requirements of AB 864. If enacted as drafted, the proposed regulations could affect the creation or elimination of jobs, while it is unlikely to see the creation or elimination of businesses in California. Existing businesses that service the oil and pipeline industries in California will likely see additional growth and the proposed regulations should not place California businesses at a disadvantage to compete with other states.



**Appendix A: Direct Costs Associated With AB 864 And Proposed EESA Regulations**

Cost Driver	2019	2020	2021
Risk Analysis	\$11,425,000	\$0	\$0
Leak Detection Systems	\$0	\$63,500,000	\$63,500,000
Automatic Shutoff Valves	\$0	\$2,412,400	\$2,412,400
Remote Control Block Valves	\$0	\$1,972,300	\$1,972,300
Construction Labor	\$0	\$32,600,000	\$32,600,000
Permitting	\$7,335,000	\$0	\$0
Totals	\$18,760,000	\$100,484,700	\$100,484,700

**Appendix B: Economic Impact To Output<sup>20</sup>**

Cost Driver	2019	2020	2021
Risk Analysis	\$17,805,863	\$0	\$0
Leak Detection Systems	\$0	\$88,061,800	\$88,061,800
Automatic Shutoff Valves	\$0	\$3,345,516	\$3,345,516
Remote Control Block Valves	\$0	\$2,735,186	\$2,735,186
Construction Labor	\$0	\$44,665,260	\$44,665,260
Permitting	\$10,886,670	\$0	\$0
Totals	\$28,692,533	\$138,807,762	\$138,807,762

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<sup>20</sup> Each dollar entry represents the total change in output that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.

**Appendix C: Employment Impact<sup>21</sup>**

Cost Driver Impacting Jobs	2019 Jobs	2020 Jobs	2021 Jobs
Risk Analysis	108	0	0
Leak Detection Systems	0	452	452
Automatic Shutoff Valves	0	17	17
Remote Control Block Valves	0	14	14
Construction Labor	0	351	351
Permitting	109	0	0
Totals Per Year	217	834	834

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<sup>21</sup> Each entry represents the total number of jobs created in all identified industries for each additional \$1 million of output delivered to final demand by industry NAICS identifier. The number of jobs created represents both part-time and full-time positions, but cannot be separately identified by the RIMS II calculations.

**Appendix D: Value Added (Gross State Product)<sup>22</sup>**

Cost Driver	2019	2020	2021
Risk Analysis	\$9,736,385	\$0	\$0
Leak Detection Systems	\$0	\$57,753,250	\$57,753,250
Automatic Shutoff Valves	\$0	\$2,194,078	\$2,194,078
Remote Control Block Valves	\$0	\$1,793,807	\$1,793,807
Construction Labor	\$0	\$25,636,640	\$25,636,640
Permitting	\$6,583,896	\$0	\$0
Totals Per Year	\$16,320,281	\$87,377,775	\$87,377,775

<sup>22</sup> Total value added per \$1 change in final demand corresponds to the impact in Gross State Product (GSP) found in the table. Value added is comparable to regional measures of GDP or in this case GSP.

### ***Summary of Department of Finance's comments on the SRIA and Response***

The Department of Finance (DOF) provided comments on the SRIA in a letter dated December 27, 2018. Finance noted that it generally concurs with the methodology used to estimate impacts of the proposed regulations, but suggested two areas for further discussion.

1. *DOF Comment: The regulatory impact on smaller operators should be considered, as they may be less able to absorb the costs associated with completing the risk assessment and associated upgrades. Some of the smaller operators may choose to go out of business, which may have implications for the state's interconnected system of pipelines.*

Department Response: California Government Code Section 11342.610(b)(9) excludes "a petroleum producer, a natural gas producer, a refiner, or a pipeline" from evaluation consideration as a small business. However, the OSFM attempted to assess the regulatory impact on all pipeline operators, including smaller pipeline operators, in conducting the SRIA by directly soliciting data from all operators in the State. No meaningful assessment of impact on operators, regardless of size, could be drawn from the limited response received. Additional attempts to gather economic impact data were made during multiple public workshops but they were equally unsuccessful in obtaining any information related to impacts. The Office of the State Fire Marshal (OSFM) independently conducted additional research and obtained alternative sources of economic information. Based on that information and analysis within the SRIA it was determined that no alternative approach identified would lessen the economic impact, if any, on small businesses and operators and still allow for effective implementation of the legislation and proposed regulations.

Impacts and costs associated with the completing of risk assessment and associated upgrades is anticipated to be distributed similarly across small and other sized operators consistent with the determinations found in the SRIA. Depending on how costs are distributed, some operators may incur higher or lower costs based on unique pipeline factors. Data indicates that operators can anticipate a cost increase in the range of 1.6% to 8.8% for a three-year period following regulatory implementation with costs returning to pre-regulatory adoption in the following years. It is entirely possible that an operator need not make any upgrades to their pipeline system when the regulations are implemented resulting in no cost impacts for upgrades. In the event a small operator is faced with increased costs they can absorb those costs through rate adjustments in the same manner as all operators, by petitioning the Public Utilities Commission. Operators can apply for a rate increase related to delivering product through a pipeline every year of approximately 10% with larger increases allowed based on a more thorough demonstration of a needed increase in rates. Regulatory compliance costs are considered a justification

for a rate increase. Additionally, cost impacts on operators will largely be related to material, hardware, plants, and facilities infrastructure that can be depreciated over time further reducing cost impacts.

Discussions with members of industry throughout the regulatory development process indicate that none of the operator's, regardless of size, intend to exit the industry due to regulatory compliance requirements proposed in the regulations. However, in the unlikely instance that a small operator chose to exit the industry the OSFM does not anticipate any negative implications for the State's interconnected system of pipelines. This is because the extensive network of pipelines in California would likely allow for other pipelines to deliver product. Alternatively, if an operator recognizes a pipeline as being so important that it may have negative implications for the State's interconnected system of pipelines if it were non-operational, that operator would likely make necessary improvements and seek rate increases to cover costs because of its market power.

2. *DOF Comment: Remote sensing and control technology may open up new vulnerabilities in pipelines from malicious hackers. Infrastructure sabotage has been identified as a serious risk, and risk mitigation plans should take cybersecurity into account.*

Department Response: The DOF's concern that remote sensing and control technology may open up new vulnerabilities from malicious hackers, infrastructure sabotage, and cybersecurity is shared by the regulated community, OSFM, and the Nation. This shared concern, however, is likely outside the scope of the proposed regulations and the legislation authorizing regulatory development. The focus of the proposed regulations and legislation is on risk analysis and general pipeline safety, not risk mitigation from malicious hackers. Even so, the risk mitigation concerns of DOF and the associated economic impacts are covered in the SRIA.

Risk analyses are focused on addressing known pipeline operations and potential spill volume reductions in response to a pipeline failure through implementing best available technologies (BAT). BAT costs and impacts are captured in the SRIA. Operators are required to submit risk analyses considering BAT applications to reduce spill volume that includes but is not limited to remote operated equipment. Robustness of BAT is one of the factors considered when evaluating whether a particular piece of equipment or system is actually BAT, which could include cybersecurity. Remote operated equipment of any kind, including BAT, incorporates some level of security ranging from encryption to physical operation but is dependent upon individual design. A piece of remotely operated equipment that did not account for cybersecurity would likely not meet the BAT requirement. The impacts and costs associated with remote operated equipment are discussed at length in the SRIA therefore any costs associated with risk mitigation, as posed by the DOF, are already built in to the analysis.